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Student debt and debt burden of graduate and first professional students: A national and institutional analysis

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STUDENT DEBT AND DEBT BURDEN
OF GRADUATE AND FIRST PROFESSIONAL STUDENTS:
A NATIONAL AND INSTITUTIONAL ANALYSIS

A Dissertation
Presented to
The Faculty of the School of Education
The College of William and Mary in Virginia

In Partial Fulfillment
Of the Requirements for the Degree
Doctor of Education

by
Daina Paupe Henry

April 2001

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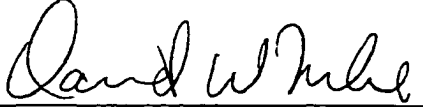
STUDENT DEBT AND DEBT BURDEN
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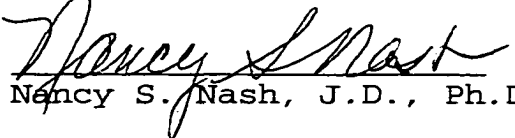
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Dedication

I would like to thank my committee - Roger, David, and Nancy - for encouraging and believing in me, and for their understanding as I faced obstacles along the way. I also want to express my gratitude to Lorne Kuffel and the College of William and Mary for their support of this endeavor.

This dissertation would not have been possible without the prayers, advice and encouragement of my friends, my parents, my brother and Joann. Lastly and most important, I sincerely appreciate the understanding and support of my family - John, Sean and Dylan. Their sacrifices made this all possible.

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Preface

A long time ago, there was a wise scholar. One day, he sat on a rock in front of his students with an empty basket in his lap. In the basket, he placed 5 rocks which filled the basket to the top. He asked his students if the basket was completely full? They answered in the affirmative. The wise man then added to the basket loose gravel, till the gravel reached the top. He once again asked his students if the basket was completely full? The students, being a little bit wiser, said no. The scholar then added sand to the basket, till the sand reached the top. At this point, the wise man did not ask if the basket was full. Instead he asked the students what had they learned from the lesson. One student suggested that the lesson was about time -, that there is always a way to squeeze in more things in the same time. The wise man laughed. The lesson, said the wise man, was to put the big rocks in first.

This dissertation was one of my rocks.

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STUDENT DEBT AND DEBT BURDEN
OF GRADUATE AND FIRST PROFESSIONAL STUDENTS:
A NATIONAL AND INSTITUTIONAL ANALYSIS

Abstract

The purpose of this research was to assess the short-term debt burden of graduate education for those students needing to acquire loans. Building on and refining the work of Leslie and Brinkman, and Keynes (but narrowing the analysis to post-baccalaureates) an analysis of amount of student debt and debt burden (the proportion of debt payments to income) was conducted. Using institutional and NPSAS data, debt was analyzed by student level (i.e. masters, doctoral, first-professional) and program of study (business, education, law, physical sciences, social sciences, and other). Student loan debt was combined with average consumer debt to assess total debt payments. The research concluded that student debt burden alone was over the threshold of 10 percent of income for two groups: law students, and doctoral students in the social sciences. When using total debt, all categories of students had debt burden that exceeded 10 percent of income. In addition, there were marked differences in amount of debt and the proportion of students acquiring debt by level and program.

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**Student Debt and Debt Burden
of Graduate and First Professional Students:
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Chapter 1: The Problem

An Introduction to the Problem and Purpose

Many of the important and current questions about the condition of American higher education cluster around its cost and its price (National Center for Education Statistics [NCES-CONDITION], 1995; Government Accounting Office [GAO], 1996; National Commission on the Cost of Higher Education [NCCHE], 1998). For example, is higher education a good investment? Are the benefits of the educational investment worth the price paid? (Kramer, 1998). Are the educational costs equitably shared between students, their families, state, and federal governments? (NCES-CONDITION, 1995). How is this changing? Is education affordable (Baum, 1996) or are students assuming too much debt in pursuit of their higher education goals (Keynes, 1995)?

All of the above questions cluster around the concept of higher education's cost, price and affordability. Yet each of the above questions when posed to a different constituent group would result in very different answers. General society, with a vested interest in the production of good future citizens, is concerned more about the societal than the private benefits of an educated citizenry. Taxpayers are concerned about the equitable appropriation of federal and state tax dollars to higher education in light

of other competing tax dollar demands. State legislators, concerned about controlling and balancing these costs between taxpayer and parent, set public policy for the financing of public higher education institutions. Federal legislators (as the primary policy makers for federal student financial aid) are involved in the setting of guidelines and limits for the distribution of student financial aid. Banks and financial planners encourage and warn families to save for their children's education - despite the evidence of record student borrowing and a societal expectation to "buy now and pay later". Students and their parents scramble to finance their higher education; using strategies such as opting for cheaper, in-state, public, and non-residential institutions, attending part-time, seeking work-study options, choosing majors with lucrative post-graduation job opportunities, creating educational savings accounts that maximize financial need, establishing pre-payment tuition programs, pursuing grants and scholarships, and engaging in record borrowing (NCCHE, 1998; GAO, 1996; Chronicle, 6/14/96; NCES, 2000). The voices and the perspectives may be different, but the issue is the same. Bottom line, what are the costs and prices of higher education?

In response to this growing concern, the National Commission on the Cost of Higher Education was formed in 1997. Their resulting report "Straight Talk About College

Costs and Prices" concluded that "the concern about rising college prices was real" (1998) and that confusion about the difference between "costs" and "prices" abounded. In its report, the Commission called for a better understanding of the difference between the two - and proposed that the term "cost" be understood as the expenditures that are incurred by the institution in order to provide an education to students; and that the term "price" be understood as the expenses the students and their families face to obtain the education (1998). In addition, the Commission proposed the concept of a "general subsidy" (which exists in varying amounts for all students) and was proposed to be the difference between the cost and the price (and includes such revenue sources such as state appropriations, institutional aid, private funds and other revenues).

However, despite this recent and growing concern about the price of higher education, the price of higher education continues to increase. Between 1987 and 1996, for public four year colleges and universities, instructional cost per student (how much an institution spends to provide education) increased 57 percent, while the general subsidy to all students increased 36 percent. During the same period, the price (i.e. tuition and fees) increased 132 percent - the sticker price increased much faster than either the instructional costs faced by the institution or the subsidy (NCCHE, 1998). In addition, for the past ten

years, the price of attending higher education has outpaced the rate of inflation by a significant margin (Mortenson, 1997; GAO, 1996; NCES-CONDITION, 1995; McPherson and Schapiro, 1991).

In fact, the NCCHE reports that for two common measures of family income - median household income and per capita disposable income - the price of tuition increased more than either measure during the 1987-1996 time period (1998). The Government Accounting Office [GAO] supported these findings - in the 15 years from 1980-81 to 1994-95, tuition at public institutions increased 234 percent, yet median household income increased only 82 percent (GAO, 1996).

In 1997, Mortenson proposed a rough measure, which compares income to tuition, and which he entitled 'tuition effort'. 'Tuition effort' he defined as a figure which is equivalent to the average yearly tuition and fees at a state flagship university divided by the median state annual family household income. Mortenson calculated that 'average tuition effort' across all states was 9.85 percent. In other words, approximately ten percent of a family's household income would be needed to cover one student attending a public flagship university. The GAO concurred, stating that the average tuition cost as a proportion of median household income had increased from between four and five percent in 1980-81 to eight percent in 1994-95 (GAO, 1996).

Concurrent with the increasing higher education cost and its resulting price tag, the student's and their family's proportion of the price tag also are increasing. Since 1980, the financial revenues of higher education institutions have shown a shift from state tax dollars to the student/family (Mortenson, 1997). In the twelve years between 1980 and 1992, the proportion of higher education's revenue from tuition and fees increased between six and seven percentage points for public institutions; while the proportion from government appropriations decreased eight to twelve percentage points (NCES-CONDITION, 1995). In 1956, 16 percent of operational expenditures (costs) of higher education institutions were covered by tuition and fees. By 1972, 23 percent of operational expenditures were covered by tuition and fees. By 1994, the proportion had increased to 33 percent (Mortenson, 1997).

The price tag for the student has increased, but the general subsidy provided from state appropriations has not increased at the same level (NCCHE, 1998). In the 15 year period from 1980-81 to 1994-95, the percentage of state appropriations fell from 56 percent to 42 percent of higher education's revenues (GAO, 1996).

Furthermore, despite the increasing price tag footed by the student and their family, little evidence exists that families are saving proportionately more for college (NCRFPE, 1993; Kennickell, 1997). On the contrary, the

Council of Economic Advisors (NCRFPE, 1993) reports that the proportion of disposable personal income going to savings has decreased from nine percent to five percent for the ten year period 1981 to 1991. Furthermore, Kennickell, Starr-McCLure and Sunden reported that the personal savings rate further decreased from 5.9 percent in 1992 to 4.7 percent in 1995.

Families are choosing to finance higher education through the procurement of loans rather than from savings or income (NCCHE, 1998). In fact, parental contributions toward their children's education fell from 43 percent of the total price of attendance in 1960, to 31 percent of total price in 1990. At the same time, the proportion of the bill footed by the student almost doubled - rising from ten to 18 percent (Baum, 1998).

King believes that parents are transferring the cost of higher education to their children (what he termed an inter-generational shifting of educational responsibility). King offers as evidence the burgeoning of unsubsidized Stafford loans and a decrease in borrowing through the Parents Loans for Students Programs (1996).

While student financial aid from federal, state and institutional sources has increased in the recent past in response to increasing higher education tuition (Mortenson, 1997; NCES, 1995; McPherson and Shapiro, 1991), it has not increased at the level to meet student need and the rising

tuition and fees of higher education. In the ten year period 1980 to 1990, federal student financial aid increased from 14 to 21 billion dollars; state aid increased from 800 million to 1.9 billion dollars; and institutional aid increased from 1.6 to 5.5 billion dollars. These additions have resulted in a total student aid increase from 16.8 billion to 28.5 billion dollars, or a 70 percent increase over a ten year period and a six percent average annual increase (NCRFPE, 1993). However, the average price of attendance for the same time period increased 109 percent for public institutions and 146 percent for private institutions (an eight and ten percent average annual increase, respectively) (NCRFPE, 1993).

In addition, student financial aid has shifted away from the awarding of grants and scholarships (which require no repayment or service) to financial packages that require students to secure loans (McPherson & Schapiro, 1991). In the 1970's, eighty percent of federal aid dollars were awarded in the form of grants (Burd, 1997). Although the total amount of monies for student financial aid has increased in the past ten years, federal grant money actually decreased from 6.7 billion dollars in 1980-81 to 6.6 billion in 1990-91 (a two percent decrease). For the same ten year period, student loans from the federal government increased from 6.9 to 13.9 billion dollars - a 100 percent increase, resulting in an average annual

increase of eight percent (NCRFPE, 1993).

In 1980, the average annual student loan was \$518. In fiscal year 1998, it had risen to \$2417 (a 367 percent increase)- far outpacing either the increase in the Consumer Price Index or the Higher Education Price Index for the same time period (GAO, 1996).

It thus seems that students have responded to their increased share of the higher education price tag by borrowing in record amounts (NCES, 2000; King, 1996; Keynes, 1995). College students and their families are in debt more than ever, relying on more loans, bigger loans, and at a rate that exceeds college cost increases and personal income increases (GAO, 1996; Daily Press, 9/22/95).

Attending higher education currently is the second largest investment a person will make in their lifetime, second only to the acquisition of a home (GAO, 1996; National Commission on Responsibilities for Financing Post-Secondary Education [NCRFPE], 1993).

However, ultimately the bill comes due; the loans a student assumes while in pursuit of higher education must be paid. And it is at this point, when student loans are to be repaid, but the benefits of higher education may not have been realized, that many students, families and taxpayers question the affordability and worth of their higher education experience (Daily Press, 8/31/93). They question how good the investment in higher education is when weighed

against the returns (NCES, 2000; Kramer, 1998).

How much borrowing is too much? Are students digging themselves into financial holes out of which they cannot emerge? How long will it take for students to emerge out of the desert of their debt and begin seeing the oasis of their labors? Will the short term costs of student loans become an obstacle to students who desire the long term benefits of higher education?

The purpose of this research was not to question the long term life-time cost-benefit ratio of higher education. Numerous studies and authors have concluded that the economic benefits of higher education outweigh the educational costs over a student's lifetime (NCES-CONDITION, 1995; Keynes, 1995; Leslie and Brinkman, 1993; McPherson and Schapiro, 1991). College graduates earn more and are employed at higher rates than non-college graduates (Crosby, 2000; NCES-CONDITION, 1995).

On the contrary, the purpose of this research was to address the short term price-benefit issue of student debt, specifically graduate student debt. For those students acquiring loans in pursuit of their educational goals, were the student loans affordable? What are the implications of this shift of educational cost from parent and taxpayer to the student borrower (Kramer, 1998; King, 1996)?

This research had two foci. The first is on the post-baccalaureate student - students at the graduate or first

professional level, who may or may not have incurred debt while attending undergraduate education. The second focus is on the short term -- the loan repayment period, which is typically the ten year period after conferral of the student's last degree. It is proposed that during this loan repayment period that the ratio of higher education's price-to-benefit is at its highest - that the short term price of student loans outweighs the short term benefit of the educational experience. And it is this period that causes the recent graduate the most difficulty in 'making ends meet'.

Why is the question of graduate debt important?

It is important to analyze graduate debt for a number of reasons. First, there is an increasing need and demand for graduate education. More students are attending post-baccalaureate education than ever before. With the increase in number of graduate students, there also comes an increase in diversity with respect to student economic status. Second, it is important because of the change in the nature of financial revenues of higher education institutions; a larger proportion of costs need to be covered through student tuition and fees. Third, there is a simultaneous shift away from the awarding of grants to financial packages that include loans. Fourth, the size of a students cumulative debt is increasing, which then effects the students ability to repay. Each reason on its own begs for

further analysis; added together, an analysis of the effect of student debt becomes compelling.

Society demands, now more than ever, an educated citizenry (Crosby, 2000; SCHEV, 1995). The law, medical and graduate students of today will be tomorrow's future leaders - it's lawyers, doctors, politicians, and faculty. The baccalaureate degree is no longer the guarantee of a better and higher paying job. For many people, a college degree is essential to their children's future, and many parents worry that access and opportunity are being eroded for the baccalaureate student (NCCHE, 1998). For many professions, the baccalaureate degree is a minimum and not a 'preferred' job requirement (Crosby, 2000).

Furthermore, the number and proportion of students with post-baccalaureate degrees is increasing in the marketplace (Grant & Snyder, 1993). Not only did the number of graduate degree recipients increase 204 percent from 1959-60 to 1969-70, but the ratio of bachelors to doctorates increased from 27 to 78 per 1000 (Grant & Snyder, 1993). And in an economy that is often focused on downsizing and reductions in force, it is the post-baccalaureate student who would have a competitive advantage over the 'mere' college graduate.

Concomitant with this shift to a more educated citizenry, there has been an institutional shift in financing. More of the burden of the cost of attendance is

falling to the student in terms of tuition and fees. This is especially true in fields which are highly competitive, such as law and medicine. In these fields, the cost of tuition and fees are often much higher than those for graduate liberal arts programs or undergraduate programs.

In addition, the switch from financial aid packages relying primarily on grants to ones relying primarily on student loans has further increased the net price of attendance (the difference between what was charged in tuition and fees minus the financial aid that does not require repayments). In the terms proposed by the National Commission on the Costs of Higher Education, this "net price" is a measure of access (1998). These two factors together - increased prices and increased reliance on loans to pay these prices - has led to increases in and concerns about average cumulative student debt (NCCHE, 1998).

The NCCHE report acknowledged that their analysis on costs and prices was limited because it focused on full-time undergraduates students dependent on their parents for financial assistance to cover the price of education. However, as part of their recommendations, the commission encouraged further investigation of the issue of cost and price as it pertains to graduate education (NCCHE, 1998). This research is one response.

What are the factors to consider in analyzing student debt?

A student's ability to repay their student debt or

'educational investment' is affected by many factors. Three primary factors controlled by the student that effect the ability to repay are: the size of the total student loan (NCES, 2000; Keynes, 1995); the other loans and debt the student has accumulated or will assume during the loan repayment period (i.e. mortgages, car payments and credit card debt); and income (NCES, 2000; Keynes, 1995). Factors outside the control of the student borrower are the economic conditions during the period of repayment - a bull or bear stock market, a growing or downsizing job market, and a high or low unemployment rate.

Furthermore, a student's ability to repay their higher education loans may be compromised by the increasing magnitude of their debt. Evidence suggests that the number of students defaulting on educational loans is increasing - students who were considered reliable re-payers in the past are no longer so (Hart, 1996).

Currently, student loan defaults occur primarily because of inability and not unwillingness to repay (NCRFPE, 1993). That is, defaults are most likely to occur when a student's post-higher education income cannot meet the comfortable debt burden ceiling of between eight and ten percent of a borrower's gross income (Keynes, 1995).

Significantly, students who have the most difficulty in repayment often are graduates of post-baccalaureate or first professional education who have amassed large amounts of

debt (Keynes, 1995). Petersdorf (1991) reported that the average indebtedness of medical students more than doubled in the period from 1979 to 1990. By 1994, the average indebtedness for new medical doctors was about \$78,000 (Keynes, 1995). Geraghty (1997) reported that the average debt for lawyers was \$40,000 in 1996. NCES reported that in 1997 (based on their 1993 Baccalaureate and Beyond Longitudinal Study, Second Follow-Up 93/97) the average debt for a person with a bachelor's degree was \$10,500; the average debt for a student with a masters degree was \$20,800; and the average debt for a student graduating from a first professional program was \$63,400 (NCES, 2000). Debts this large, when combined with average consumer debt resulting from house, car and credit card payments, may easily turn the tide from comfortable to unmanageable debt burden. And evidence suggests that credit card debt is growing and may compound the debt burden problem (Kennickell, 1997).

What are the ramifications of 'too much' graduate debt?

Inability to make or difficulty in making payments on a student's loan obligation may have an impact on the student, lending institution, and the economy (NCES, 2000). Although a degree cannot be repossessed; a home, a business or a car can. And because of this intangible nature of the educational investment, they are different than home mortgages or car payments. In difficult financial times,

choices between payments of home or car debt and student debt may have to be made.

Given finite financial resources, students with large amounts of educational debt may choose to pay their student loan debts last, opting instead to put more priority on paying other financial obligations that have tangible components. However, NCES found no evidence that borrowing for education affected the life style choices for undergraduates - choices such as marriage or major purchases of a car or house (2000). One explanation may be that, in their study, undergraduates with a bachelors degree borrowed on the average only \$10,500. Households with student loan burden less than 5 percent of income spent more money on non-educational items such as cars and homes, than did those students with loan burdens more than 5 percent of income (NCES, 2000).

These types of financial choices may result in an increase in the current and relatively stable 15 percent national cumulative student loan default rate (NCRFPE, 1993). Even though the loan default rate remains about 15 percent, this national student loan default rate amounted to \$6.2 billion dollars, for the two years 1992 and 1993 (Daily Press, 3/2/93).

Evidence suggests that this rate may be increasing. Geraghty (1997) reports that 9.2 percent of all the 1992 law graduates defaulted on their loans within 2 years; by 3

years, the figures increased to 13.3 percent. For law graduates from the class of '93, the 2 year default rate was 10.6 percent with a 3 year rate predicted to be even higher than the previous year.

Furthermore, as more higher education institutions take part in the Ford Federal Direct Lending Program, a potential rise in student loan defaults may have consequences for the economic soundness of the direct lending programs within the higher education institutions themselves. This could effect future student lending, because loan repayments are used to fund new student loans. Current student loan defaults could effect the ability of future generations of students to obtain financial aid.

However, the ramifications of a student's inability to repay may extend further than loan default. Fear of inability to repay, or fear of assuming debt may encourage a student to postpone or cancel higher education pursuits (King, 1996; McPherson and Schapiro, 1991). Fear of student debt has been shown to negatively effect higher education enrollment attendance patterns (NCES, 2000; McPherson and Schapiro, 1991). Students from low-income families fear accumulation of debt (more so than middle and upper income families) and may therefore forego the chance for post-baccalaureate education. Post-baccalaureate education, already limited by the fewer number of graduate schools and the fewer number of slots for graduate students, may be even

further limited by a student's fear of debt.

Another possible effect on both the student and the institution is at the program level. Fear of student debt may force a student to choose a field which leads to a lucrative post-graduate career rather than a field chosen on the basis of true interests or talents.

In 1995, medicine and dentistry degree recipients had earnings of \$5049 per month (national average), lawyers \$4543 per month. Graduates who majored in non professional areas such as the physical sciences averaged \$2357 per month, psychology \$2236 per month, and education \$1884 per month (Daily Press, 2/29/96).

Similar to average salaries, starting salaries showed the same pattern. Graduates in 1993 had an average starting salary of \$22,968. However, starting salaries were \$31,187 for computer science and engineering degree recipients; were \$19,450 for education degree recipients; and \$20,903 for social science degree recipients (NCES-IND33, 1998; NCES, 1996). Institutions may be forced to scrutinize needed graduate programs due simply to lack of enrollments.

Models for Analyzing Student Debt

In summary and to make an analogy, the accumulation of student debt is a form of investing in the futures market (NCES, 2000). What are the costs today (in terms of tuition paid, of debt acquired, and income foregone) compared to the benefits of the future (in terms of increased lifetime

income and increased job opportunities)? Ultimately, the question is whether student debt will be a junk bond or a blue chip stock. Will investments in graduate education be a wise one? Or are there other non-financial considerations for graduate education that overshadow the financial ones (NCES, 2000)?

Baum (1998), an economist, makes a similar analogy. Baum believes that education is an investment in human capital which is expected to increase future earnings. However, Baum also states that if the rate of return to the investment is inadequate to pay off the loans incurred, the investment is viewed as inefficient and the debt levels incurred may have major repercussions on both standards of living and life choices.

Baum concludes (using an analysis that is similar to the one proposed by Keynes) that the average debt burden for undergraduate students is affordable. Using bank loan guidelines - which she set at a limit of 28 percent of pre-tax monthly income for housing costs alone or a limit of 36 percent of pre-tax monthly income for housing and consumer debt combined (a difference which is similar to the ten percent figure used by Keynes in his analysis of debt burden) - Baum calculated that undergraduate debt burden was affordable.

Baum calculated from federal data bases that average housing /apartment costs for college age graduates to be

\$6400 per year (\$500 a month); and that a college graduate made an average starting salary of \$27,000 per year. Housing costs therefore were only about 24 percent of pre-tax income. To reach a banking guideline limit of 36 percent, additional consumer debt payments of \$270 per month would have to be used. If these payments were used exclusively to pay off student loan obligations - a student could comfortably borrow at Stafford Loan rates up to \$22,000 - which is the undergraduate maximum. However, Baum's calculations did not take into account any loan rates not obtained at Stafford rates, nor does it include debt for car payments, or credit card debt (accumulated either during college or post graduation) (Baum, 1996). However, Baum also states that solid evidence about debt and its effects on enrollment and persistence is sparse (1996).

The NCES study "Debt Burden Four Years After College" concurs with Baum. Undergraduate borrowers were "well positioned" to repay their debts - 88 percent were employed full-time, averaged a debt of \$10,500, and had an average salary of \$35,300. However, the study also found that the undergraduate who went on to get a masters borrowed on the average \$20,800; and the undergraduate who went on to get a first professional degree borrowed on the average \$63,400. Information for doctoral students was not available (NCES, 2000).

King (1996) notes that borrowing may be a problem for

some students, especially graduate students who have large debt and do not enter high paying professions. However, King also believed that the majority of students receive enough return on their educational investment so that debt burden is manageable.

Two models can be used to understand debt burden. Leslie and Brinkman proposed one method of assessing the price and benefit of educational investments using a model based on 'internal rate of return [IRR]'. Keynes proposed another method for assessing affordability. However, both were imperfect for addressing the two foci of this research - the graduate student and the short term loan repayment period.

Leslie and Brinkman in their investigation of 'internal rate of return' -- which they defined as the relative increment in earnings associated with a given increment of education -- concluded that the 'internal rate of return' is highest for baccalaureate degree holders, with a rate between 11.8 and 13.4 percent. That is, baccalaureate degree holders earn between twelve and thirteen percent more than non-degree holders when controlling for the price of attendance.

However, Leslie and Brinkman concluded that IRRs are not as high for graduate study. They calculated the return to be only 7.2 percent for master's recipients and 6.6 percent for doctoral recipients (Leslie and Brinkman, 1993).

To follow the above analogy, a baccalaureate degree could be likened to a stock with a high rate of return, while advanced degrees can be likened to a stock with a lower rate of return.

But Leslie and Brinkman's model is imperfect. When calculating 'internal rate of return', Leslie and Brinkman did not account for the true price of education. Their calculated price of education did not differentiate between the published price (i.e. tuition and fees) charged a student, and the actual price (i.e. tuition and fees charges on the students bill with reductions, remissions and scholarships). In the terms of the NCCHE, there was no differentiation between the sticker price, and the price plus the general subsidy provided all students. In some cases (and often depending upon the field of choice) graduate students receive stipends, tuition waivers, work studies and grants to help cover the tuition and fees; and assume debt to cover the rest.

Leslie and Brinkman's model also did not account for student debt payments post graduation in their calculation of internal rate of return. Nor did the 'internal rate of return' make a differentiation between entry level salaries (which are incurred during the loan repayment period) and average life time earnings. Leslie and Brinkman's model used the long term benefit of average lifetime earnings, and not the short term average entry level salaries.

Keynes proposed a different method of analyzing affordability of attendance. Keynes' simple model assesses average undergraduate student debt and compares this with the average lifetime earnings similar to the methodology used by Baum and the NCES 2000 study. Keynes converts average life-time earnings to monthly revenue (benefit) and compares it to the monthly cost (repayment on student loans). Keynes uses the conservative banking standard (which is similar to the figure used by Baum (1996) and the NCES (2000) study in their analyses of loan affordability) of eight percent as a limit on debt burden. For example, monthly student debt payments are affordable if they are less than eight percent of the monthly gross income revenues.

However, Keynes' methodology also is imperfect. Keynes' calculations did not include corrections for other consumer debt encumbered by the newly graduated student. Car payments and credit card debt (a norm in today's society) were not included within his analysis. In addition, and similar to Leslie and Brinkman, Keynes used average lifetime salaries rather than entering salaries.

The General Question

Although information on undergraduate average indebtedness and ability to repay is relatively available, little information about graduate students and their average indebtedness and debt burden (the percentage of income used

for the repayment of debt) can be found (NCES, 2000). The exception being for students in the medical or first professional programs (NCRFPE, 1993).

For these reasons, information and further research regarding student debt and in specific graduate debt is needed. In addition, the 1998 National Commission on the Costs of Higher Education was unanimously concerned about the sharp increases in student borrowing and called for research to study this issue in greater detail, especially as it related to graduate education (1998).

This research addressed this relative lack of information concerning graduate student debt and debt burden and affordability. The research furthered the findings of the National Commission (1998) and answered the question whether graduate education is affordable to those required to acquire loans.

By modifying Keynes' quantitative procedure for calculating undergraduate debt burden to include not only student but also average consumer debt; further refining it through the use of starting salaries rather than lifetime earnings; and updating it for current economic conditions; this study analyzed (in a manner similar to Leslie and Brinkman's cost benefit model for internal rate of return) graduate student total debt and projected debt burden in the aggregate and by select programs of study in order to assess the short term affordability of graduate higher education.

Information was drawn from two sources: from a public Doctoral I institution's graduate financial aid and enrollment information for the year 1995-96 (PDI9596), and the National Center for Education Statistics National Post-Secondary Student Aid Survey (NPSAS) for the year 1995-96.

Definitions:

In this research, *student debt* is presented in two ways: yearly and cumulative debt. Yearly debt refers to the debt that the student acquired during the 1995-96 year. Cumulative debt refers to the cumulative loan obligation procured by a student in the pursuit of graduate/first professional education or from undergraduate education. All students with yearly debt will have cumulative debt, but not all students who have cumulative debt will have yearly debt.

Consumer debt is defined as non-education related debt that a student accumulates while pursuing an undergraduate or graduate education or is encumbered during the standard repayment period of student loans (ten years). For example, car loans and credit card debt are often assumed by students during the length of their studies or shortly after graduation.

Total debt (TD) is the total of both consumer debt and cumulative student debt.

Debt burden or the *ability to repay* is a percentage resulting from the comparison of monthly debt to monthly gross income. A *comfortable total debt burden* will be set at

ten percent of gross monthly income; i.e. a monthly total debt payment less than ten percent of gross monthly income will be assumed not to be a burden; monthly total debt payments greater than ten percent of gross monthly income will be a burden. This is a standard banking figure, and has been used by other researchers in their analyses of debt burden.

A *graduate student* is defined as a post-baccalaureate student enrolled in either a graduate or a first professional program. For this research, masters and doctoral students (2 different levels) in the programs of education, business, the physical sciences and the social sciences, and law students (a third level and a separate program) were used.

Specific Research Questions Addressed

The following general research questions were addressed:

- * What is the average debt (student and total) that a graduate student is required to repay during the student loan repayment period?
- * Were there any differences in the amount of debt based on program and level?
- * What is the debt burden of graduate students?
- * Were there any differences in debt burden based on program and level?
- * Were there any differences between national and

institutional data in terms of reported student debt and debt burden?

* What proportion of graduate students assumed debt on the whole, and by program and level?

Limitations and Delimitations

This research was delimited (because of institutional characteristics) to post-baccalaureate students in the following programs: education, business, law, the physical sciences and the social sciences. The institutional source of information was a moderate sized public university with a Doctoral I Carnegie classification that offers a mix of doctoral and master's programs and a first professional program in law.

National graduate financial aid data were from the National Center for Education Statistics National Post-Secondary Student Aid Study for 1995-96 (NPSAS). This research built on the NCES report - Student Financing of Graduate and First Professional Education, 1995-96, and used their classification of graduate students by level and program (differentiating between law; masters programs in education, business, physical sciences and social sciences; and doctoral programs in education, physical sciences and social sciences) (NCES-NPSAS, 1998).

Information concerning starting salaries by level and by program were obtained from two surveys. The National Association for Colleges and Employers (NACE, 1996) 1995-96

Survey was used for all but the law salaries. Starting law salary information was gathered from the 1995-96 annual survey done by the National Association for Law Placement (NALP, 1996). Average consumer debt was gathered from the Federal Reserve Board's web page on Household Debt Service Burden

(<http://www.federalreserve.gov/releases/housedebt/default>).

Review of Literature

Graduate Education - The Purpose, the Desire, the Need?

Given the added monetary and time costs of graduate education, why do students attend, why do higher education institutions offer graduate programs, and what are the benefits to society? In answering these questions, at least three different perspectives must be considered: the student's, the institution's, and the public's. There is no doubt that society, the institution, and the student benefit from a certain level of higher education (Baum, 1996). But how educated does the student need to be? Is there a benefit to society, the institution, and the student that is specific to graduate education; one which is not available at the undergraduate level? Why did graduate education evolve at all?

History of Graduate Higher Education

The founding of Johns Hopkins University in 1876 - with its change in focus from undergraduate to graduate education, and its concurrent expansion of the function of the university from one of being primarily instruction oriented to include also the function of research - marks the establishment of graduate education in the United States. Founded under the philosophy of the German universities, this new type of education encouraged faculty

to focus on scientific research, while training highly skilled post-baccalaureate students. This educational development served the needs of both the institution's desire for prestige, and society's and business's increasing desire for new knowledge and research.

At approximately the same time that this new purpose of higher education was introduced, the Morrill Land Grant Act was passed by Congress. This act encouraged states and territories to form new institutions of higher education (land grant or other). To survive and flourish against the new competition, already existing higher education institutions sought out ways to distinguish themselves. The ability to offer graduate education and grant doctorates allowed institutions to become more competitive and prestigious (Gumpert, 1994).

Simultaneous with the expansion of graduate education in the early twentieth century was the rise of sponsored research. This rise in sponsored research supported the expanded role of higher education institutions and provided them with new sources of funding. The reliance on state appropriations by public institutions and student tuition and fees for public and private institutions was supplemented by revenue drawn from research grants from federal, state and private resources.

By the 1940's, less than 60 years after the founding of Johns Hopkins, federal funding to universities for research

totaled 31 million dollars (Gumport, 1994). Shortly thereafter, between the years 1941 and 1945, the United States spent three billion dollars in research and development, with one-third going to university based research projects (Gumport, 1994). By 1992-93, revenue from federal restricted grants and contracts to higher education for research purposes exceeded \$12.5 billion (NCES-FISCAL, 1995).

With this new infusion of funding and the prestige relegated to institutions with graduate programs, colleges and universities were encouraged to offer post-baccalaureate education. In 1900 there were only 14 institutions granting doctorates. To date, there are a little over 800 institutions offering graduate education; granting in the 1995-96 academic year over 520,000 masters, first professional, and doctoral degrees (NCES-DEGREES, 1998). Of the total 2.2 million degrees awarded in 1995-96 (both graduate and undergraduate), 18 percent were masters degrees, 2 percent were doctoral degrees, and 3.4 percent were first professional degrees, or slightly less than one quarter of all degrees granted (NCES-DEGREES, 1998). In addition, even though the total number of degrees (undergraduate and graduate) awarded increased by one percent from the previous year, the number of masters, first professional and doctoral degrees increased by 2.3, 1.6 and 0.7 percent respectively (NCES-DEGREES, 1998).

Almost half of all the masters degrees awarded in the 1995-96 academic year (a total of 400,000) were awarded in two fields: education (106,000) or business (93,000). These two fields were followed by the health professions (33,000) and engineering (27,000).

At the doctoral level (a total of 45,000), education accounted for the largest percentage of degree recipients (15 percent or 6,750) followed by engineering (14 percent or 6,400) (NCES-DEGREES, 1998).

The number of masters, doctoral and first professional degrees has not only been increasing, but increasing in proportion to the number of bachelor degree recipients. In the late 1800's, master's recipients per bachelor recipients was approximately 6-8 per 100. By the early 1930's the ratio increased to about 16 masters per 100 bachelors. By 1969-70 the ratio had increased to 33 masters per 100 bachelors (Grant & Snyder, 1993).

The number of doctoral recipients to bachelor recipients was very small until the 1920's. But in the ten year period between 1959-60 and 1969-70 the number of doctoral degree recipients increased 204 percent. In addition, the ratio of bachelors to doctorates increased from 27 doctorates per 1000 bachelors to 78 doctorates per 1000 bachelors for the same time period (Grant & Snyder, 1993).

Not only has the degree production increased, but

graduate enrollment also has increased. Graduate enrollment, which had been fairly stable in the 1970's and 80's at about 1.3 million students, rose almost 23 percent between 1985 and 1993 (NCES- DIGEST, 1995).

Ultimately, the business of graduate education - conducting research and the training of future scientists, researchers, business leaders, faculty, and professionals - would separate from the business of undergraduate education - whose purpose is the instruction of students to gain an educated citizenry. And the higher education institutions responded to this split in purpose by creating in many instances graduate and undergraduate schools under the broader umbrella of the institution.

The Purpose of Graduate Education

Society's Benefit. But what does graduate education provide to society, that is not offered at the undergraduate level? In a pragmatic sense, graduate education provides society with the highly trained professionals it will need: the future doctors, lawyers, ministers, college and university faculty, and researchers. Graduate education, more than any other institution, provides and prepares the next generation of leaders in business, politics, and society.

The 1990 Census reports that the numbers of executive, professional and technical workers grew by 38 percent in the decade since 1980, while the number of skilled blue collar

workers declined by 2 percent. By 1990, there were three times as many lawyers (first professional degree recipients) as there were firefighters (Daily Press, 6/11/93).

From a more abstract yet macro level, many have argued (Leslie and Brinkman, 1993; Bok, 1995) that the new information society in which we find ourselves will require education beyond that of the baccalaureate level (Crosby, 2000). Kramer states that the baccalaureate credential may well serve as an aid in screening job applicants and merely opens the door to on-the-job training (1998). In addition, businesses and professional organizations encourage post baccalaureate certifications and continuing education. Advertisements for desirable high paid positions recommend, if not prefer, graduate education.

In 1993, the Bureau of Labor Statistics found that the earnings of college graduates averaged \$640 per week. This figure can be compared to \$404 per week for those with only a high school degree. However, graduates with first professional or doctoral degrees averaged \$952 per week (Daily Press, 8/31/93). Zusman (1994) believes that the new information explosion and technology will demand a highly educated citizen. All signs indicate that graduate education may be the new key to unlock doors of opportunity to many of the professions.

Concomitant with highly trained professionals comes the high paid salaries vital to many communities economic plans

and development. Communities interested in attracting business and industry to their regions emphasize the availability of a skilled and well trained workforce, including the availability of higher education institutions in the area. University-business partnerships have become key relationships within communities and economic development is becoming a critical role for higher education. In addition, states benefit from the economic and social development which comes from increased participation in higher education (Mumper, 1995).

Institutional Benefits. For higher education institutions, one benefit of graduate education is that it provides a mechanism for self-rejuvenation and perpetuation. It is the graduate schools that will provide the next generation of faculty with the skills necessary to continue academic traditions.

In the process of training and preparing students for future careers and professions, graduate education also provides the higher education institutions with inexpensive yet highly skilled labor. For many institutions, it is the graduate student who teaches the introductory course, the labs, and the discussion sections of the undergraduate curriculum, providing ultimately a very cheap source of highly skilled labor. For the 1992-93 academic year, 21 percent of all doctoral students received some sort of research or teaching assistantship as part of their duties

(NCES-NPSAS, 1995).

In addition, graduate programs provide institutions with prestige. Institutions with graduate programs are more attractive to students, and in an age of competition for students, the ability to offer a graduate program and the faculty expertise it provides may be the difference in a student's choice of where to matriculate.

The prestige of being able to offer graduate education can also lead to further funding not only in terms of sponsored research, but private gifts, and federal funds.

Student Benefits. Both anecdotal stories and published research support the notion that graduating from higher education allows the student to not only get a job, but to get a good, if not a better, job. For many, it is a gateway to economic opportunity (Crosby, 2000; Chronicle, 6/96).

The Census Bureau reported that in 1990, high school graduates earned \$1077 a month, while people with bachelor's degrees earned \$2116 a month. In addition, master degree recipients earned an average of \$2822 per month, doctoral recipients averaged \$3885 per month, and first professional recipients earned \$4961 per month (Daily Press, 1/28/93).

In addition, to average monthly earnings, increased life time earnings were also related to higher education level. A professional degree recipient can expect lifetime earnings of more than 3 million dollars compared to 1.4 million dollars for a bachelors degree (Daily Press,

7/22/94).

Numerous other research studies support this positive correlation between social economic status and level of higher education (Leslie and Brinkman ,1993; McPherson and Schapiro, 1993). The Bureau of Census also concurs - persons with post-secondary and post-baccalaureate education earn more at the start of their careers and over their total careers than those individuals who possess only a high school education (Bureau of Census, 1990).

As a result of this increased average monthly income and this increased life-time earnings, more students are enrolling in higher education. As a result, the average educational attainment of the US population has increased. In 1980, 30 percent of high school graduates attended post-secondary education. By 1990, the percentage was between 39 and 40 percent (NCES, 1995). In 1984, approximately 17 percent of the entire US population had obtained a bachelor's degree; by 1990 (only 6 years later) 25 percent had obtained a bachelors degree (Daily Press, 1/28/93). In 1994, 22 percent of the entire 25 year old population had completed college, compared to only 17 percent in 1980 (NCES Digest, 1995). More students are attending higher education than ever before, and more are attending at a higher level.

Furthermore, in order for a student to maintain the level of social and economic status in which they were

raised, attending higher education (and/or post-baccalaureate education) may not be a simple issue of whether the student should attend. Instead, students and their families will have to decide whether they can afford not to attend post-baccalaureate higher education, in order to just maintain their current social standing.

As noted previously, college graduates have an advantage in the labor market over high school graduates - with more opportunities and higher salaries (NCES, 1995). However, this relative advantage of college graduates over high school graduates is due more to a **decrease in earnings for high school graduates** than a real increase in earnings for college graduates. Male college graduates earned approximately \$33,000 in both 1980 and 1993. However, earnings of male high school graduates decreased from \$28,000 to \$21,000 over the same time period (NCES, 1995). Post-secondary education may be an individual's only means (though costly) to protect oneself from a deteriorating labor market (NCES, 1995).

Public Perception of Graduate Education and its Effect on Public Policy

Society's perception of higher education does effect how the costs of graduate education are distributed - ultimately setting policy about who should 'foot the bill'. And how graduate students 'foot the bill' for their educational pursuits is determined in large part by

institutional policies. And the institutional policies are determined in great part by state public policy - which in turn, is determined in large part by the public's perception of higher education. The balance point seems to center around the question: is the education a private benefit or a public good?

Typically, higher education institutions have primarily relied on tuition, state and federal allocations, and endowment and private funds for their revenues. These types of resources for covering the costs of higher education have not changed over time. But the relative proportions of the resources have changed (Keynes, 1995; Grant & Snyder, 1993).

In the early colonial period, American colleges received most of their finances through taxes, wealthy patrons, and student tuition (Rudolf, 1962). Their enrollment was largely limited to the well to do (Grant & Snyder, 1993). Following American independence, and until recently, America's public colleges were primarily financed through state allocations and tuition (McPherson and Schapiro, 1991). America's private colleges, on the other hand, were and continue to be funded by a combination of wealthy patrons (such as Rockefeller, Cornell, and Stanford), alumni donations, and student tuition (McPherson and Schapiro, 1991).

Federal involvement with and monetary support of

individual higher education institutions (except for the military academies) only began with the passage of the Morrill Land Grant Act in the 1860's. Continued federal involvement and monetary support increased in the 1940's with the passage of the GI bill and numerous other student financial aid programs of the 1950's and 1960's. In addition, federally sponsored research activities increasingly became a significant source of revenue for higher education institutions by the 1940's (Rudolf, 1962) and a major factor in the development of graduate programs (Gumport, 1994).

To Keynes (1995) this shift in primary funding from student tuition to government agency (for public institutions) reflected a parallel shift in society's view of higher education. Higher education, in colonial times, was considered a private benefit to the individual and/or future leader -- and as a private benefit, the individual was expected to pay. As society changed its' perception about the purpose of higher education: to be one of a public good and benefit - the primary revenue source also changed from the individual to the state and federal government (Keynes, 1995).

However, since the 1970's, the cost of higher education at both the undergraduate and graduate level has increased greatly (NCCHE, 1998; GAO, 1996; McPherson and Schapiro, 1991). This is primarily due to increases in expenditures

in three areas: instruction, administration and research (NCCHE, 1998; GAO, 1996; NCES-COND, 1995). These three areas accounted for two thirds of the increase in college costs. But the cost increase was largely driven by increases in faculty salaries - which grew an average of 97 percent from 1980-81 to 1994-95 (GAO, 1996).

In addition to growing personnel related costs, four other factors have contributed to the growth in private (and public) college tuition: the need to improve scientific and technical equipment; the need for expanded institutional aid to students; and the need to comply with federal and state regulations (NCCHE, 1998; Burd, 1997) and the need for facilities renovations and deferred maintenance (NCCHE, 1998).

Some have argued that advances in technology will perhaps mediate the increasing cost of instruction - with computerized classrooms and long distance learning. However, for most higher education institutions, the cost of keeping up with technology (where hardware and software are outdated within the year) offsets any gains realized through new instructional technologies (NCCHE, 1998).

Furthermore, state budgets for higher education have not kept pace with the increasing educational costs because of a combination of competing demands and inflation (GAO, 1996; NCRFPE, 1994; Keynes 1995). In fact, in many states, higher education has lost its "favored" status - with the

percent of state government appropriations' to public higher education decreasing, while the percent for competing demands such as health care/Medicaid and corrections increasing (Mortenson, 1997; McPherson and Schapiro ,1993; Mumper, 1995; McPherson, Schapiro and Winston, 1994).

Others, such as Leslie and Brinkman (1993), argue that perhaps higher education has not lost favor with the public. They argue instead that the requirements for national defense, health care, care of the aged and the needs and costs associated with the correctional system have increased dramatically in comparison (GAO, 1996).

Not only has the state portion of the higher education financing pie gotten relatively smaller in the recent past (from 56 to 42 percent of total revenue) but the federal portion has undergone a similar downsizing in the recent past. Federal funds for both financial aid and for sponsored research have decreased.

Federal monies for financial aid grants and scholarships have not increased proportionately with higher education's increase in cost. Federal allocations for financial aid increased at an annual rate of 6 percent for the period 1980 to 1990; however, the average cost of attendance for the same time period increased at 8 percent annually for public institutions and 10 percent annually for private institutions (NCRFPE, 1993).

In addition, federal monies for sponsored research

(which is the mainstay of many graduate programs and research projects) has decreased.

As a result, students and their families are being asked to carry an ever increasing share of the cost of their undergraduate and graduate higher education. Commissions, special reports, presidential panels, and numerous articles in journals, magazines and newspapers speak to the criticality of the cost issue (NCCHE, 1998; GAO, 1996; Daily Press, 9/12/93, 9/22/95). Mortenson (1997) notes that public universities and colleges are offsetting losses in state appropriations with increases in tuition and fees, which are ultimately shouldered by parents and students.

Keynes suggests (1995) that this shift away from government to student financing of the cost of higher education, may be indicative of a change in society's view of higher education's benefit. Society may once again be viewing higher education as more of a private benefit to the individual and not necessarily one of a public necessity or good. Baum (1996) believes individual people will pay a high price for private benefits, but are less likely to foot the bill if the benefit is for society at large.

As distinctions are increasingly drawn between the undergraduate and graduate educational experience - and with more focus on undergraduate financial aid than on graduate financial aid - society may be making a distinction between what may still be the public good of an undergraduate

education and seemingly private benefit of graduate education.

Public policy which already makes distinctions between graduate and undergraduate financial aid, may ultimately be deciding who pays and how much. The pain of affordability, while a headache at the undergraduate level, may become an excruciating migraine at the graduate level.

Affordability, Accessibility and Enrollment

Higher education enrollment, at either the undergraduate or graduate level, is effected by many factors - two of which are: access and affordability. And either factor in the negative, inaccessibility or unaffordability, will affect or prevent a students' probability of enrolling.

Furthermore, affordability currently may be a more critical factor than accessibility. When access barriers have been removed through desegregation and affirmative action plans, affordability barriers can still effect the students' ability to attend higher education.

And it is for this reason (the critical relationship between enrollment and affordability) and the great concern about price to students, families and policy makers (NCCHE, 1998; NCES, 1995) that a public policy on student financial aid exists. In the wake of Jacksonian democracy, one goal of federal public policy was to make higher education more accessible to the general public. But without concomitant removal of affordability barriers, higher education's

student diversity and accessibility has been and will be continue to be compromised.

Numerous studies have shown that financial aid in the form of grants (a form of financial aid which requires no repayments in money or service) effects the post-secondary enrollments of low-income students (McPherson and Shapiro, 1991; Leslie and Brinkman, 1993).

Furthermore, Hart (1996) reports that student academic decisions (i.e. where to attend) are driven more often by financial considerations than desired outcomes (what financial package was offered vs. what programs do they offer). In addition, cost has also been found to influence a student's choice of institution (though results are more mixed) (Leslie and Brinkman, 1993).

And as costs of attending higher education (especially graduate education) consistently increase, the issue of affordability may become critical. Affordability may become as potent in the future as segregation was in the past in limiting graduate higher education or in minimizing choice.

Undergraduate Options. At the undergraduate level, the price of undergraduate education (and therefore its accessibility and affordability) are concerns. But they are not the critical, protest-inciting, Supreme-Court-ruling-required issues of the recent past. Currently, over 3600 higher education institutions serve over 14 million undergraduate students (NCES, 1995) - enrolling

approximately 33 percent of the nation's 18-22 year old age group (Grant & Snyder, 1998).

Options to control affordability at the undergraduate level abound. Students choose from an array of alternatives: attending less expensive community colleges, attending public institutions, attending part-time, and attending commuter institutions, for example. In 1980, 28 percent of all undergraduate enrollments were part-time; by 1994, 42 percent were part-time, and primarily enrolled in the lower cost two year institutions (NCCHE, 1998).

Other options for reducing costs for undergraduates are the use of advanced placement credit, dual enrollment during high school, enrollment in international baccalaureate programs, and the use of college level examination programs [CLEP] (GAO, 1996).

In addition to these institutional and programmatic choice options for controlling costs, financial options to keep post-secondary education affordable also exist. For example college pre-payment programs, college savings plans, and or monthly payment plan options are available to the undergraduate (GAO, 1996, Mumper, 1995). By 1997, 17 states had college savings or pre-paid tuition plans, with four more states planning these programs within the year. All of the remaining 29 states were considering such plans to help students and families bear the cost of undergraduate education (Chronicle, 8/8/97).

But, these options are not aimed at shifting the burden of cost. Instead, these options focus on how to change family savings patterns to afford the greater cost (Mumper, 1995) and to shift how money is saved. Currently 35 percent of a students' assets are expected to be used for each year of education. However, the same asset held by the family results in a much lower expected contribution and therefore a much greater need amount, if that student applies for financial aid (McWade, 1995). The same amount of money invested under different individuals (within the same family) can result in great differences in calculated need and loan eligibility.

Approximately 60 percent of all full-time undergraduates in 1992-93 (and 45 percent of all public four year undergraduate attendees) received some sort of financial aid . Thirty-three (33) percent acquired loans - with an average loan of \$3076 for all students (NCES-MINIDIGEST, 1995). This figure increased to one half of all students by 1997, with 49 percent of all 92-93 degree recipients borrowing from some source (NCES, 2000).

With a majority of all full-time undergraduates receiving some student financial aid (and with a large plurality of all undergraduates receiving aid) it is safe to conclude that financial aid packages have become a vital part of the student's means of financing the price of their higher education. Given this, it seems that for the

undergraduate student the concern about price of higher education may be issues for some, but not critical ones for the vast majority.

Graduate Options. In comparison, the same options for controlling the price (and therefore access and affordability) are not available for graduate education.

Access to graduate programs is limited. Although the social and demographic barriers such as gender and ethnicity are no longer relevant, few institutions offer graduate programs (as compared to the number offering undergraduate programs) and these programs have more stringent academic requirements and therefore fewer student slots. Only a little over 800 campuses offer post-baccalaureate education (Gumport, 1995) with national graduate and first professional enrollments totaling fewer than 1.7 million students in 1992-93 (NCES, 1995). Of all students attending post-secondary education (graduate and undergraduate) graduate students account for a little less than eleven percent of the total in 1992-93 (NCES, 1995) and 2.8 million in 1995-96 (NCES -NPSAS, 1996).

How do graduate students fare in terms of affordability issues? Sixty eight (68) percent of all full-time graduate students receive some financial aid in 1992-93 (as compared to 60 percent for full-time undergraduate students). This may not seem a large difference; however, 44 percent of all full time graduate students assumed student loans, as

compared to only 33 percent of the full-time undergraduates (NCES, 1995). This undergraduate borrowing proportion increased to almost half by 1997 (NCES, 2000). Of those students responding to the Baccalaureate and Beyond Survey, 29 percent of baccalaureate degree recipients went on to graduate programs - and half of that 29 percent borrowed to attend graduate education (NCES, 2000).

When looking at the percentages by type of graduate student, there was little difference in the proportion of students receiving any form of financial aid in 1992-93: 63 percent of master's, 70 percent of doctoral's and 77 percent of first professional received financial aid. However, in terms of the proportions of graduate students assuming loans, there were differences: 68 percent of all full-time first professional, 33 percent of all full-time masters' and 26 percent of all full-time doctoral's (NCES, 1995) assumed some amount of debt. For all graduates students receiving aid, the average loan amount was \$9231 in 1992-93; for masters students \$6708, for doctoral students \$9424, and for first professional students \$13,487 (NCES-NPSAS, 1995). By 1997, 83 percent of students in first professional programs, 58 percent of students in doctoral programs, and 42 percent of those in masters programs engaged in graduate borrowing (NCES, 2000).

Why this disparity and what are its implications to the student and society? How has this come about? Why are some

graduate students willing to assume debt more than others?
Does this willingness to assume debt possibly effect
enrollment decisions?

The Graduate Students' Response to the Cost of their
Education

How do graduate students pay for their higher
education? What options are available to control costs -
both financial and non-financial?

Graduate students often are forced to rely primarily on
financial rather than non-financial strategies to meet the
price of their post-baccalaureate education. The reason for
this is that many of the non-financial strategies used by
undergraduates to control costs, such as attending
inexpensive or community colleges or attending part-time,
are not as available to graduate students. In addition,
with fewer graduate institutions from which to choose,
prospective graduate students are limited in their options
of choice of institution as a means of controlling costs.

Several financial options are available to the
prospective graduate student: use savings; work through
graduate school; receive a college scholarship, grant or
work/study; receive a tuition waiver or discount; or assume
debt.

Unfortunately, little is known about the proportion of
families or students (graduate or undergraduate) who use
these various financial and non-financial options. Most

studies focus on students who receive financial aid or are unable to pay, and not on those who can pay the price (through either savings, tuition payment plans, or the relatively new pre-payment programs) (McPherson and Schapiro, 1991; NCRFPE, 1992). In addition, most of the research done on student financial aid has focused primarily on the undergraduate and not on graduate students (NCES, 2000).

However, two factors: the larger proportion of students assuming debt at the graduate than at the undergraduate level (44 percent vs. 34 percent, respectively) - and the decrease in average personal savings (from nine to five percent of disposable personal income in the past ten years [NCRFPE, 1993]) - taken together provide evidence that graduate students are probably not "using savings" for their post-baccalaureate education. Add to this, the low probability of entering post-graduate education (due to the stringent academic requirements for entry into a limited number of graduate slots) and the lack of a popular call to "save for your graduate education", lends one to believe that means other than savings are used to finance graduate education.

The option of combining full-time work with graduate school does exist. However, many post-baccalaureate programs are primarily full-time endeavors, and the ability to combine full-time work with full-time graduate study is difficult, though not impossible. Furthermore, many of the

scholarships and assistantships used as part of the financial aid packages and incentives to attract graduate students require some sort of service - through either teaching, research or general assistantships, and usually are only offered to full-time students (McWade, 1995).

There is yet another alternative to control costs - the part-time or full-time enrolled student who is employed full-time. These student consider themselves primarily employees and not students. These students return to post-baccalaureate education for a variety of reasons and in a variety of programs, sometimes as part of an employer continuous education or re-certification programs, other times for career change or enhancement. These students are primarily enrolled in education and business administration (NCES-NPSAS, 1998).

Students in these areas are usually employed full-time in their profession. Masters students in the arts and sciences also work, and many work full-time, but consider their primary occupation to be students working to pay their expenses rather than employees who are attending graduate education (NCES-NPSAS, 1998).

For doctoral students pursuing a PhD, 80 percent considered themselves students who are working to meet expenses (even if full-time) rather than employees seeking advancement. On the other hand, almost all doctoral students pursuing an EdD (98 percent) worked while enrolled

and 83 percent worked full time - only 16 percent considered themselves primarily students (NCES- NPSAS, 1998).

For first professional students, 88 percent of medical students considered themselves primarily students, and 93 percent were enrolled full-time, full-year. The majority of law students (77 percent) enrolled full-time full-year (NCES-NPSAS, 1998).

Given the above, the majority of full-time graduate students who are not employed in their profession are left with primarily three means for obtaining the financing necessary for their post-baccalaureate education: a combination of scholarships/grants from a variety of sources; tuition reductions, waivers or discounts usually from institutional or state sources; and the assumption of debt.

Tuition reductions and waivers usually are in the form of state or institutional waivers. The State Code of Virginia (section 23-38) allows full time graduate students who provide service to a public higher education institution to be eligible for waivers of tuition costs, and/or reductions in tuition rates from higher out-of-state costs to lower in-state rates. In 1994-95, \$27 million in aid was awarded by Virginia under this section of the State Code - most of it to graduate students (SCHEV, 1995).

In addition, public higher education institutions can reduce tuition and fee charges for graduate students at the

dissertation/research/thesis level - allowing a student to enroll for a full-time load, but incur a much reduced cost. However, these options are not generally available to all graduate students - especially in those programs such as business administration that requires no thesis or research work.

Scholarships and grants can come from many sources - federal research grants, state grants, institutional discretionary aid and private awards. These scholarships and grants may or may not require service in exchange.

However, there is one very significant difference between the first two financial options (tuition waivers and scholarships/grants) and the latter - the assumption of debt requires repayment after graduation.

How many graduate students receive financial aid that does not require repayment? How does this compare to the number of graduate students who receive loans? As noted previously, in 1992-93, over two-thirds of all graduate students received any kind of financial aid (68 percent). Yet forty four (44) percent of all graduate students assumed a loan. Given this fact, it can be concluded that only 24 percent of all graduate students in 1992-93 who received financial aid, got aid that did not require future repayment, whereas almost half of all graduate students assumed some level of debt. This proportion continued into 1997, with half of all graduate students amassing debt

(NCES, 2000). And as noted earlier the proportion of students assuming debt differed based on student level - with a vast majority of first professional students amassing debt.

This relatively high proportion of graduate students assuming debt is a relatively new phenomenon. Choy and Kagehiro reported (1993) that only 21 percent of full-time and 6 percent of part-time graduate students assumed loans, for a total of 27 percent, in the academic year 1989-90. In the three academic years between 1989-90 and 1992-93, the proportion of graduate students incurring debt rose from a total of 27 to 44 percent. And projections call for further increases in the proportion of graduate students acquiring loans. Currently, the mainstream graduate student attends full-time, full-year and receives some sort of financial assistance (NCES, 1995) - through an assistantship or grant and possibly some form of tuition reduction, and in many cases assumes debt.

The History of Federal Student Financial Aid

What caused the creation of a federal policy of student financial aid? When and how did it begin and has the focus always been on the awarding of loans versus grants?

The history of federal student financial aid is a relatively new one. Even though the first privately endowed scholarship was established at Harvard University in 1643, it wasn't till the Morrill Land Grant Act in 1862 that

public federal grant colleges, known as "land grant institutions" were established - grants which allowed broad access to low-cost post-secondary institutions (Hartle, 1996).

By 1930 and in response to the Depression, the first federal college work-study programs were created by the National Youth Administration. This program was then followed by the Serviceman's Readjustment Act (commonly known as the GI Bill) in 1944. The GI bill opened the higher education system, both at the undergraduate and graduate level, to a new audience - encouraging adult and non-traditional learners, expanding higher education's diversity and allowing access to higher education for many who could not have afforded to attend. By fall 1949, 2.4 million students enrolled in college or about 15 percent of all persons between the ages of 18-24 years (Grant & Snyder, 1993).

In 1958, the National Defense Education Act was enacted, which was designed to encourage interest in math, science and foreign languages. More importantly, this act established the first federal loan program - the National Defense Student Loan. The establishment of a national loan program was significant because up until this point federal aid was awarded primarily as grants (requiring no service) or as work-study programs (which required some service). Up until this point no federal repayments were to be made.

In 1964 and in response to President Johnson's calls for "a war against Poverty" and "A New Society", the Economic Opportunity Act was passed. This act created the College Work Study Program which continues in existence today. This program - later renamed the Federal Work Study program - was the inspiration behind several state work study programs, the Virginia Work Study program for example.

In 1965, the pivotal Higher Education Act was enacted by Congress. It was significant in establishing many of the current widely used federal student financial aid programs. Title IV of this act established the large federal grant program entitled the Educational Opportunity Grant (EOG). These financial aid grants did not have to be repaid, nor did they require service, but were available on a need based requirement, in order to make higher education more accessible to those who could not easily afford to attend (Hartle, 1996).

Title IV of the 1965 Act also established the Guaranteed Student Loan Program (GSL) - for the purpose of expanding the existent federal loan program. It was designed to provide aid to students from middle-income families by allowing them to be eligible for long-term low interest loans (Hartle, 1996).

Also included within this 1965 act was the Federal Family Education Loan Program. This loan program shifted even further the federal focus from grants to loans by

providing loans not only to the student, but also to the student's family for the cost of a family members' higher education (Hartle, 1996). In response to all this legislative change, college enrollment was as much as 35 percent of the 18 to 24 year old age group in 1969 (Grant & Snyder, 1993).

In 1972 more Higher Education Amendments to Title IV were signed into legislation. These amendments established the Basic Educational Opportunity Act (BEOG), commonly referred to as Pell Grants after the Rhode Island Senator who was its sponsor. These grants were for the neediest of students and served as a base upon which further student financial aid packages could be built.

With the establishment of the BEOG, the older EOG program became the Supplemental Opportunity Grant Program (SEOG) and was one of many programs that built upon the BEOG grant (Hartle, 1996).

Also in 1972, the State Student Incentive Grant Program (SSIG) was enacted. This program's purpose was to encourage states to fund student financial aid programs by providing matching federal money for any state money allocated.

However, by the mid 1970's and despite the enactment of the GSL program, middle-income families began to complain about the affordability and price tag of higher education. Up until that point, federal grants and loans were targeted primarily for low-income students. However, with the ever

increasing costs associated with attending higher education, middle income families began to worry about affordability.

In response, the Middle-Income Students Assistance Act of 1978 was enacted. This legislation eliminated income restrictions for the Guaranteed Student Loan Program (enacted in 1965) - thereby allowing more students from middle income families to obtain educational loans (Burd, 1997). This act also expanded eligibility for BEOG to include middle and upper income families (Hartle, 1996).

In addition, in 1979, Congress removed a cap on the subsidies banks receive from the federal government for granting student loans. This removal of subsidy limits encouraged banks and lending agencies to grant more student loans (Burd, 1997) and loan volume (the number and the amount per student) shot up by 42 percent in one year (King, 1996).

The Higher Education Amendments of 1980 continued to expand the student eligibility criteria for federal financial aid. These amendments proposed changes in the methodologies used for needs analysis, eased requirements, and increased annual and cumulative limits on awards. In addition, a new program targeted for parents was enacted - the Parent Loans for Undergraduate Students program (PLUS). As a result of all of these changes more students and families were allowed to be eligible for more aid (Hart, 1996). Government spending on the student loan program

tripled from \$4 billion in 1977 to close to \$12 billion in 1982 (Burd, 1997).

However, in the time period between 1980 and 1986 a number of pieces of legislation and amendments concerned with student financial aid were enacted - once again aiming to restrict aid and control costs. Among those amendments, and reflecting the political climate and economic conditions of the time, Congress restricted the criteria for Guaranteed Student Loan eligibility and required Pell Grant eligibility be determined prior to loan eligibility. In addition, the formula for loan eligibility was revised and took into consideration both family income and the cost of attendance. Now, students attending costlier institutions would be eligible for larger loans (Burd, 1997).

In 1986, the Higher Education Act was once again amended. Applicants for Guaranteed Student Loans were required to demonstrate need, regardless of income.

In 1986, the Supplemental Loans to Students program (SLS) also was created. These supplemental loans were only for graduate, first-professional and independent undergraduate students. This program was repealed in 1994.

In 1992, the Higher Education Act was once again amended. The Guaranteed Student Loan (GSL) Program was renamed the Stafford Subsidized Loan. In addition, a federal unsubsidized Stafford loan program was established for students who did not qualify for the in-school interest

subsidy, a benefit which was available under the original Stafford Subsidized Loan program. This program targeted students who did not qualify for federal interest subsidies but who desired to assume debt nevertheless.

Along with the renaming of the original GSL program, borrowing limits were raised and the federal method for calculating expected family contribution was changed. Significantly, the new formula did not include home equity as a family asset. As a result more middle income families became eligible for loans (King, 1996) and borrowing grew dramatically (NCES, 2000).

In 1993 the Student Loan Reform Act was passed in response to President Clinton's call for changes in the federal loan program. It created the Ford Federal Direct Lending Program. The program's purpose was to streamline the student loan process and reduce expenses by eliminating the subsidies to banks and guaranteeing agencies (Baum, 1998; Hartle, 1996). However, the growth of this new direct lending program has been discouraged by banks and loan guarantee agencies (Chronicle, 1998).

Another idea proposed in the Clinton administration was the Americorp in 1993. In exchange for community service either prior to, during or following undergraduate education, portions of student loan debt would be forgiven. In 1998, Americorp had an annual budget of 425 million and included about 95,000 volunteers eligible for educational

benefit (Chronicle, Americorp, 9/25/98). At its inception, it was proposed to serve 500,000 participants at \$10,000 scholarships. However the program was scaled down by Congress.

In 1993, Clinton also proposed a program for income contingent loans as part of the direct student lending program (Baum, 1998). This program proposed that loan repayments would be income contingent - a fixed percentage of a graduates income over 25 years or until the loan was paid off. However, by 1998, less than 1 percent of new borrowers in the direct loan program used the income contingent option. A study in 1997 by the General Accounting office found that 40 percent of all borrowers in the income contingent program had already defaulted on guaranteed student loans, and that for many the income contingent program was a last resort option for paying debt (Chronicle, Borrowers, 9/25/98).

In 1993-94, the Federal Family Education Loan Programs authorized an increase in maximum loan limits and also introduced a program of unsubsidized Stafford loans. This unsubsidized program allows students to borrow all the costs of education, regardless of the family's financial circumstances.

Some authors such as Baum (1998) worry that these new loan options will be used to meet the family expected contributions, furthering the downward trend of family

contributions to student higher education.

In 1997 the Commission to study rising costs of higher education was formed. At the same time, Congress also enacted a number of provisions aimed at providing aid to help with the rising price of higher education. The six provisions were: the Hope scholarships (a \$1500 a year tax credit for the first two years of college); a tax credit for lifelong learning (a \$1000 credit for the third and fourth years of college or graduate study); allowing borrowers to deduct from federal income tax the taxable income interest on student loans; restoring the tax exemption of employees paid tuition assistance for undergraduate study; allowing penalty free withdrawals for IRA's used for college expenses; and allowing students to exclude from taxable income calculations the loans forgiven by institutions in exchange for community service (Chronicle, Budget, 8/8/97).

Current State of Graduate Financial Aid

Currently, the federal government is the major source of student financial aid - at either the graduate or undergraduate level (McPherson and Schapiro, 1991; NCES, 2000). The Chronicle of Higher Education (October 4, 1996) reports that for the 1995-96 academic year, student financial aid topped \$50.3 billion, of which \$37 billion dollars was awarded by the federal government. Furthermore, federal loans accounted for three quarters of that \$37 billion dollars. Borrowing reached a peak in 1994-95, with

a record of \$24 billion borrowed (NCES, 2000).

Currently, the federal student loan program is the largest single student aid program in the United States. It provides almost twice as much money as all other federal aid programs together, providing about 58 percent of all federal aid (NCES, 2000). In 1993, \$15 billion dollars in loans were awarded to about 5 million borrowers (Mumper, 1998; Daily Press, 6/11/93). By 1994, 21 billion dollars was awarded - a 42 percent increase in one year. By academic year 1995-96, over 6 million students and their families were projected to borrow 25 billion dollars worth of aid (Hartle, 1996).

Since 1990, student borrowing has grown an average of 22 percent each year - 4 times the annual increase in personal income (Daily Press, 9/22/95). This rate of increase has far surpassed the increases in state, institutional, or other sources of student financial aid.

Currently, graduate students can borrow from federal or state governments, can borrow from higher education institutions directly, or borrow from private lenders. These loans can be subsidized or unsubsidized, need or non-need based.

Not only the number of different types of loans has increased, but the 'volume' of the loans has increased - more students are requesting more money. Or in other words, the average student is incurring a greater average loan. In

1996, college students had borrowed more money than in the previous three decades combined (New York Times, 7/21/96).

In part the requests for more money per student are the result of changed borrowing limits, and changed criteria for determining eligibility to pay for education, i.e. house and family farm equity can no longer be considered in loan calculations. Currently, the maximum amount that graduate and first professional students may borrow is set at \$138,000. And it is not unusual for students attending law school to borrow \$60,000 or more in their three years.

Students are requesting more money because costs of graduate and undergraduate education have risen. Keynes (1995) estimated that in 1987 there were 1.7 million student borrowers borrowing 5.5 billion dollars, for an average of \$3,178. By 1993, six years later, there were over 3.1 million borrowers, borrowing 13.4 billion dollars, for an average of \$4,308. And there is no projection for a reversal of this trend. In fact, the volume of student and parent loans has risen 65 percent since the 1992-93 school year (Daily Press, 3/10/1996).

But what is hidden in these average debt figures as reported by Keynes is the fact that these are annual figures. The average amount of money borrowed in 1993 was \$4,308. This is not the cumulative debt of the student. Loan programs in 1993 may have lent 13.4 billion dollars, but that is nowhere near the total amount of money assumed

in debt by students. For the graduate student, the problem is even greater. On top of any debt accumulated at the undergraduate level, post-baccalaureate students face the burdens of debt from their graduate studies.

By 1996, college graduates on the average owed \$11,000 to federal programs, and up to \$19,000 to other sources. Students in law programs could be faced with debts between \$90,000 and \$120,000. Using financial planner estimates of \$125 monthly repayment for every \$10,000 borrowed, a new graduate faces loan payments of \$375 a month and new lawyers \$1,250 per month (New York Times, 7/21/96).

Graduate students have a difficult situation of balancing educational goals with marriage, families, and financial responsibilities which often include mortgages and car payments (McWade, 1995; NCES, 2000). Many graduate students have work and family responsibilities: 40 percent were married, 31 percent had dependents other than the spouse, and 79 percent worked (NCES-NPSAS, 1996). Almost half of all graduate students in 1995-96 were financing their graduate education by themselves or with help from family and friends. Over half of all students received some aid, three quarters of the student attending full-time received aid.

Managing debt level is a major concern for graduate students (McWade, 1995) contrary to Baum's conclusion that undergraduate debt level is affordable and comfortable.

Currently federal restrictions on undergraduate borrowing limit total student debt from federal sources to a total of \$22,625 or approximately \$5600 of debt per year. (Chronicle 9/5/97) and graduate borrowing is limited to \$138,500. However, this is far below the price of one year of tuition room and board at a private undergraduate institution (\$16,645) or a public institution (\$6,674) in 1994-95 (NCES, 1995). Student and families are forced in many instances to turn to other than federally regulated alternative sources of debt.

Summary of Literature

In essence, the history of student financial aid both at the graduate and undergraduate level has undergone a shift, as noted by Keynes (1995). This shift in cost and rapid increase in tuition has highlighted affordability concerns of students and their families. In addition, Mortenson (1997) believes that the cost shift has the greatest impact in low and middle income families - because lower income families are reluctant to borrow large sums (Baum, 1996). With real incomes declining since the 1970's and real college costs increasing since 1981, enrollments decisions regarding 'access, choice and persistence are inevitably impacted. The effect is a rationing of higher education opportunity based on ability to pay' (Mortenson, 1997).

Federal financial aid policy has moved from a primarily

grant driven system to a system of loan programs. In addition, federal financial aid policy has encouraged the creation of state government financial aid policies and institutional policies. However, despite this encouragement, student financial aid is primarily a federal and not a state issue and is primarily focused on loans and not on grants.

As stated before, in 1992-93, 68 percent of all graduate students received financial aid. Forty four percent of all graduate students acquired debt. Of those graduate students granted financial aid, only twenty four percent received aid that did not require repayment (NCES, 1995). Over three quarters of graduate students who received aid incurred debt. This leads one to believe that many graduate students can not afford to attend without some financial aid.

In addition, when examined at a closer level: 77 percent of first professional students received aid and 69 percent assumed loans; 70 percent of doctoral students received aid, but only 26 percent assumed loans; 63 percent of masters students received aid but only 33 percent assumed loans. In other words, 8 percent of first professionals students received aid which requires no repayment; 30 percent of masters students received aid which requires no repayment; and 44 percent of doctoral students received aid which requires no repayment.

It was beyond the scope of this research to address all the different types of financial aid awarded to graduates in terms of grants, stipends, tuition waivers and loans. Aid for graduate students varies depending upon the degree they are pursuing and their field of interest (McWade, 1995). Doctoral students are more likely to receive aid than masters, and students in the sciences are more likely than students in arts and humanities to receive aid. It is because of this disparity and the resulting use of loans to cover the costs that debt was examined. The focus of this research was to study the debt portion of graduate student financial aid.

Models for Understanding Debt Burden

The critical question of this research was whether graduate education is affordable for the students who are assuming loans. Two conceptual frameworks are available with which to answer this question, the first by John Keynes, the second by Larry Leslie and Paul Brinkman. Each, however, focused their analysis primarily on the undergraduate and not the graduate. Each framework has flaws.

One conceptual framework that can be used to understand student debt is based on Leslie and Brinkman's meta-analysis on 'internal rates of return' [IRR] (1993). Internal rates of return are conceptualized to be a comparison between the benefits of lifetime increases in earnings in relation to

price of educational attainment. For undergraduates, the internal rate of return averaged approximately 12 percent, whereas internal rates of return decreased for graduate and first professional students (from 8 to 6 percent) (Leslie & Brinkman, 1993).

But Leslie and Brinkman's model is imperfect. When calculating internal rate of return, Leslie and Brinkman did not account for 'true cost' of education. Their calculated cost of education did not differentiate between the average tuition and fees that an institution would have charged a graduate student and the tuition and fees actually paid by the student (the net cost of attendance). In many cases, graduate students receive stipends, tuition waivers, work studies and grants to help with the immediate costs and assume debt to cover the rest.

Leslie and Brinkman's model also did not account for student debt in their calculation of internal rate of return. In addition, Leslie and Brinkman calculated internal rate of return is based on average lifetime earnings, and not on the average entry level salaries that graduate students face in the first ten years following graduation, the period in which the student loans are being repaid.

Keynes (1995) in his article "Are Students Borrowing Too Much?" concluded, similar to Baum (1996), that undergraduate students are not borrowing too much. However,

he is not so sure about undergraduate in the future nor about current graduate and first professional students.

His analytical method for deriving his conclusions is simple. He assumes that difficulty with repayment of loans arises when payments represent 8 to 10 percent or more of the borrower's gross monthly income (citing lender experience with debt burdens and defaults). (This methodology is similar to one used by Baum (1996) in her analysis of cost and affordability.) Keynes then compares projected student debt with life-time average salaries pro-rated on a monthly bases.

However, Keynes calculations did not include corrections for other consumer debt encumbered by the newly graduated student. Consumer debt has increased 39 percent in the last 5 years and exceeds \$1 trillion. In addition, the average household has borrowed \$4800 by credit cards (Daily Press, 3/10/96).

Using this methodology, Keynes estimated that a 1993-94 freshmen would leave college with a debt of \$13,600. Repayment of this debt under a standard 10 year amortization schedule, would require payments of \$165 per month. For this payment to be less than the 8 to 10 percent limit for lenders, annual starting salaries would have to be in excess of \$25,000. For 1993-94, starting salaries for bachelor degree recipients were about \$24,500. He therefore concludes that undergraduates will not have difficulty in

making repayments. He cautions however, that if amounts borrowed increase, but starting salaries do not, that difficulties would arise.

Although information on undergraduate average indebtedness and ability to repay is relatively available, little information can be found on the average indebtedness and debt burden (the percentage of income used for the repayment of debt) of graduate students who are not in the medical or first professional field (NCRFPE, 1993). The NCES study "Debt Burden Four Years After College" is a beginning to understanding graduate debt. However, even this study acknowledges that it is not a comprehensive study of graduate borrowing and that the reported amounts borrowed were probably not typical (NCES, 2000).

The same analytical method used by Keynes needs to be applied to the graduate and first professional student. Keynes acknowledges that the average indebtedness for new medical doctors in 1994 was \$78,000, and for new lawyers \$40,000 (Geraghty, 1996) but failed to provide the same calculation of affordability. Geraghty calculated that the payments on this student loan obligation would amount to one quarter of pre-tax monthly income for lawyers specializing in public interest or public defender (1996). This far exceeds any bank guideline for affordability of non-housing related debt burden.

In support of Keynes' caution concerning the level of

debt for graduate and first professional students, the United States General Accounting Office, Division of Human Resources conducted a study evaluating medical students' ability to repay Stafford Loans. Third and fifth year students were using approximately 17 to 18 percent of their gross income to meet just their student loan obligations (which exceeds the 10 percent level considered manageable by Keynes and others.)

Not only should Keynes' analysis be extended to graduate and first professional students, but should be redone for undergraduate students. The large increase in debt and the current stagnation of starting annual salaries call into question Keynes' previous results. A re-examination of debt burden needed to be done and the purpose of this research was to investigate whether graduate education is affordable to those students who acquire loans.

Chapter 3: Methodology

The purpose of this research was to investigate student loan debt burden. Can graduate students afford (over the short term loan repayment period) the debt they incur in pursuit of their graduate and first professional education? This question of affordability needed to be examined in light of three factors: a shift in revenue source away from state allocations to student tuition and fees; a simultaneous shift in student financial aid from grants to loans; and stagnant or declining entry level salaries in the economy. In essence, was price of different levels and programs of educational attainment affordable and worth the monetary benefits in a short term perspective?

Conceptual Framework

Leslie and Brinkman (1993) and Keynes (1995) (among many others) have examined the issue of price/benefit as it relates to higher education. Yet, each of their models have some weaknesses.

Leslie and Brinkman (1993) conceptualized educational price/benefit as the increased lifetime earnings as compared to estimated averaged cost of attendance (controlled for constant dollars) - in order to calculate a private (internal) rate of return for both undergraduate and graduate degree recipients. However, using estimated average attendance costs, as Leslie and Brinkman have done,

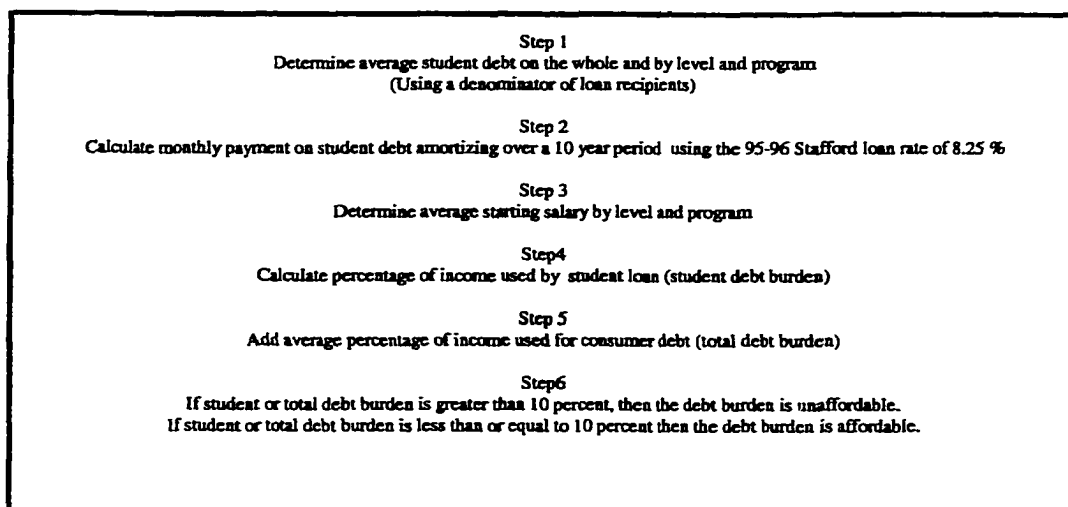
does not assess the true price to the student. Price is heavily influenced by the tuition and fees charged (which may vary greatly depending upon the institution and program chosen), the grants and scholarships awarded, the tuition waivers granted, and the general subsidies given. In addition, the model used by Leslie and Brinkman's was based on an internal rate of return that used average life-time earnings and not on the average entry level salaries that graduate students face during the loan repayment period. Lastly, Leslie and Brinkman's model does not account for student debt and other consumer debt in their calculation of internal rate of return.

Keynes (1995) analysis also used average lifetime earnings and compared it to student debt payments in order to decide whether the average debt burden was comfortable and "easy" to repay. However, once again, Keynes' methodology used life-time earnings rather than entry level salary averages in the calculation of debt burden; did not control for possible consumer debt accrued during the same period; and focused primarily on baccalaureate degree recipients.

In a modification of the economic analysis conducted by Leslie and Brinkman (1993) and Keynes (1995), this study focused more narrowly on a shorter time span--the loan repayment period (the 10 years following graduation) and the loans accumulated by post-baccalaureate students.

This research built on the work of Leslie and Brinkman's higher education as private investment framework; and combined it with Keynes' quantitative procedure of calculating student debt burden. However, this research went further and assessed the average student loan debt as a percentage of income, consumer debt as a percentage of income, and entry level salary. This analysis did not adjust for foregone income, depleted savings, or other methods used to pay or waive educational costs prior to graduation (such as grants and scholarships or tuition discounts).

Figure 1 below is a graphic representation of the basic analysis:



Research Design

Applying and modifying both Keynes', and Leslie and

Brinkman's models, the following information was gathered:

- a. average yearly and cumulative student debt by educational attainment level (masters, doctorate, first professional) and by program: business administration, education, the physical sciences/marine science, the social sciences, and law. These categories were chosen based on the framework and preliminary results of the NPSAS graduate and first professional financial aid study (NCES-NPSAS, 1998). The denominator was based on those students incurring debt;
- b. proportion of students who incurred debt by educational attainment level and program;
- c. average entry level salaries by educational attainment level and program;
- d. average consumer debt as a percent of personal disposable income;
- e. demographic variables such as gender, ethnicity and age of students.

Information Sources:

Institutional information. Institutional information regarding student debt was gathered from financial aid and student enrollment information of a public, Doctoral I university located in the south. Graduate debt information was provided by the Office of Financial Aid from information provided on the Free Application for Federal Student Aid (FAFSA). To qualify for need-based financial aid, students are required to complete the FAFSA and inaccurate or

incomplete information carries heavy penalties for the student.

The information gathered from the financial data base was yearly student loan figures for graduate and first professional students for the academic year 1995-96. This information was also used, in conjunction with enrollment data for the 1995-96 year, to determine proportions of students incurring debt.

Information concerning a student's educational attainment level (masters, doctoral or first professional) and program of study (education, business administration, physical sciences/marine science, social sciences, or law) and were gathered from institutional data bases of students enrolled during the 1995-96 year. Demographic information such as gender, ethnicity and age was also gathered. This information was merged with the institutional financial aid information to assess student loan debt for all graduate students and proportions of students incurring debt.

National Data. National data was collected by the National Center for Education Statistics from the self-report National Post-Secondary Student Aid Study (NPSAS:96). The publicly available DAS (Data Analysis System), a web based software package which allows tabulations of percentages, was used to assess national yearly and cumulative graduate student debt. The DAS contains information on approximately 2 million graduates and first

professional students, of which 4000 were telephone interviewed. The NPSAS data base is a compilation of a number of data bases - including information about institutional characteristics of the higher education institutions attended by the respondents.

The DAS software was developed and is maintained by NCES. It allows researchers to specify and generate their own tables for the raw data of the NPSAS:96 data (NCES-NPSAS,1998). However, there are limitations to the statistics available via the web based DAS. Percentages were easily obtained, but raw counts or higher analytical methods such as analyses of variance were not available using the web based DAS.

The following data items were gathered from NPSAS: yearly student debt, cumulative student debt (borrowed at the undergraduate and graduate level), program, and level. In addition, the NPSAS data base was filtered for some analyses for students attending Doctoral I institutions and in a separate analysis for students completing their degree in 1995-96.

Consumer debt information. Average consumer debt information was gathered from the Federal Reserve Board-Household Debt Service Burden web page (<http://www.federalreserve.gov/releases/housedebt/default.html>). This quarterly information is presented as a percentage of personal disposable income. The figures for

the latter quarters of 1995 and the beginning quarters of 1996 were averaged to get a single figure.

Starting Salary Information. Starting salary information was gathered from two sources. The majority of the information came from the 1995-96 annual survey conducted by the National Association for Colleges and Employers (NACE). This information was used because it provided salary information by both level of education and program.

Starting salary information was not available for law students from the NACE. An alternate source was used - the National Association for Law Placement's annual survey for 1995-96.

Methodology

The aim of this research was to provide a new model for understanding higher educational price/benefit based on the frameworks of Keynes, and Leslie and Brinkman. Information was gathered from publicly available survey data sources, both at the national and institutional level.

Yearly student loan information was gathered from both the national and institutional information. In addition, demographic information about the loan recipients and the total population for both sources was gathered. The demographic information, yearly student loan amount, and the proportion of students assuming debt were gathered to assess comparability between the two data sources: the national and

institutional information. When possible, statistical analysis for significant differences was done for the institutional data.

Additional information from NPSAS was gathered. In addition to yearly student loan information, cumulative loan information (including debt from undergraduate and graduate work) was gathered. This loan information was then filtered through two separate criteria: choosing only those students from Doctoral I institutions; and choosing only those students graduating during the 1995-96 academic year. In the case of the first filter, the purpose was to have the national data be more similar to the institutional data. In the case of students graduating in the 1995-96 academic year, the purpose was to maximize accrued debt, since the NPSAS study was sent to a random sample of students at all stages of graduate work.

Once the average cumulative student loan debt was calculated, it was used for the basis of the debt burden calculations. Average cumulative student debt was amortized over a typical 10 year student loan repayment period using the 95-96 Stafford loan rate of 8.25 percent in order to arrive at an average monthly debt payment. Cumulative student loan information was done by level and program.

Average starting salary information (yearly and monthly) was then gathered from the NALP and the NACE surveys; and was presented by program and level.

Then student loan debt burden was calculated as a percentage of monthly student loan payments to monthly starting salary income. The resulting figure was compared with the debt burden ceiling of 10 percent (which has also been used by Keynes, Baum and others).

Next, monthly consumer debt (as a percentage of personal disposable income as calculated by the Federal Reserve board) was added to the student loan percentage. This resulted in a total debt burden figure. The resulting figure was also compared to the same debt burden ceiling of 10 percent.

Permission for use of specific institutional financial aid information was requested from the institution's Director of Financial Aid. Permission for use of institutional enrollment was requested from the institution's Director of Institutional Research. The enrollment information included all graduate students enrolled during the 1995-96 year, regardless of whether the student applied for financial assistance, and was used to assess proportion of students assuming debt.

Permission to use the public DAS national data base information is not required. Information is available publicly on the web. The entire national data base was accessed, but the analysis (when at all possible) excluded all first professional students except law, and categorized missing responses and students not fitting the other

categories as "other". This was done to insure as much comparability with institutional information.

Institutional informant permission was not required. However, confidentiality and anonymity of institutional information was required and permission from the Committee on Human Subjects was sought and approved. All data whether institutional or national were confidential and secure.

The proposed data analysis was descriptive and emergent. There were no a priori hypotheses to test, it was an economic model building and not a causal or relational study.

Chapter 4: Results

The goal of this research was to investigate graduate student loan debt and total debt burden (the affordability of debt payments as a percentage of income) using institutional and national data. In the process of this analysis the following general research questions were also investigated:

- * what was the average cumulative and yearly student debt of a graduate student;

- * were there any differences in student debt based on a student's degree objective or level (masters, doctoral or first professional);

- * were there any differences in student debt based on a student's program of study (either school or field);

- * were there any differences (on the whole or by level and school) in the proportion of graduate students assuming debt;

- * were the national data comparable to the institutional data;

- * what was the national average cumulative student debt and debt burden (student and total) both on the whole and by level and field.

In this analysis the variables school and field are similar but not identical and are variants of a student's

program of study. The term school is used to categorize students from the institutional data base into approximately the same categories as the term field for NPSAS information.

The variable field has six categories: education, business, law, social sciences, physical sciences and "other" (which includes first professional programs such as health and dentistry [but excluding law], other miscellaneous programs that did not fall into the available fields, and invalid or missing field information).

The variable school also has six categories, but they are different from those for the national data base. They are: education, business, law, social sciences, physical sciences and marine science. For this institution, marine science is a separate school from that of physical sciences, and has its own admissions and financial aid packaging and policies. Combining the loan information from two different schools into the combined field of physical sciences could lead to inappropriate conclusions. Therefore, the two schools remain separate in the institutional data; whereas they both would have been combined under the field of physical sciences for the NPSAS data.

Creating the "other" category for the national data base, allowed the programs which fell outside the categories used for the institutional data, to be separated in the analysis and therefore to closely approximate the school

information of the institutional data.

In this chapter, the results of this research are broken down into five areas: the demographics of the institutional population, the demographics of the National Post Secondary Student Aid Study (NPSAS) population, an analysis of the yearly loan information from the institutional data base (including a comparison to the national population), a presentation of the yearly and cumulative debt information from the national data in total and for various subgroups, and a culminating table which integrates national cumulative information with starting salaries and consumer debt to calculate total debt burden. It is the final table that will ultimately answer the question concerning student debt burden of graduate and first professional students.

Demographics of Institutional Population

During the 1995-96 academic year, there were 2,314 students enrolled in graduate programs at this particular public Doctoral I institution (see Table 1) . This institution included a first professional degree program in law, and graduate programs in business, education, the social sciences and physical sciences. This information is presented here in order to address the research question regarding the proportion of graduate students acquiring debt.

Of these 2,314 students, 49 percent were male (N=1127,

Table 1. Demographics of Graduate Students from Institutional Data, 1995-96 Academic Year*

	(A)	(B)	(C)	(D)	(E)	(F)	(G)
	Loan Recipients	Percent of Row Total	Students without Loans	Percent of Row Total	Total	Percent of Column Total	Significance
Gender							
1 Male	424	37.6	703	62.4	1127	48.7	Chi square=7.301, df=1, p<.007
2 Female	383	32.2	804	67.7	1187	51.3	
Ethnicity							
3 White	675	34.8	1267	65.2	1942	83.9	Chi square=77.999, df=5, p<.001
4 Black	84	52.5	76	47.5	160	6.9	
5 Other	48	22.6	164	77.4	212	9.2	
Level							
6 Masters	351	27.7	915	72.3	1266	54.7	Chi square=553.569, df=2, p<.001
7 Doctoral	58	11.1	468	88.9	526	22.7	
8 First Professional	398	76.2	124	23.8	522	22.6	
School							
9 Education	107	16.8	529	83.2	636	27.5	Chi square=559.304, df=5, p<.001
10 Social Sciences	100	36.2	176	63.8	276	11.9	
11 Physical Sciences	19	8.4	208	91.4	227	9.8	
12 Law	401	73.7	143	26.3	544	23.5	
13 Business	165	33.6	326	66.4	491	21.2	
14 Marine Science	15	10.7	125	89.3	140	6.1	
15 Total	807	34.8	1507	65.2	2314	100.0	
16 Average Age	27.7		32.9				t test, p<.0001

* Institutional data from a southern public Doctoral I university. Represents all students enrolled at any time during the 1995-96 academic year.

see Table 1, Column F) and 84 percent were white (N=1942). Fifty-five percent of the total students (N=1266) were enrolled in masters programs, 23 percent (N=526) were enrolled in doctoral programs, and 22 percent (N=522) were enrolled in the law first professional degree program.

The school of education enrolled the plurality of graduate students - 27 percent (N=636, see Table 1, Column F). The school of law enrolled 24 percent (N=544), followed by business (21 percent, N=491), the social sciences (12 percent, N=276), the physical sciences (10 percent, N=227) and marine science (6 percent, N=140).

In addition, Table 1 enumerates the demographics of students who received student loans during the 1995-96 academic year and those who did not receive student loans. For the demographics of gender, ethnicity, age, student level, and student school there was a significant difference between student loan recipients and non-loan recipients (a significant chi square value in each case, with $p < .007$ or less; see Table 1, Column G.)

More males than females acquired student loans, whereas more females than males did not acquire loans (chi square value 7.301, $df=1$, $p < .007$, see Table 1, Column G). In terms of ethnicity, there was also a significant difference. Thirty five (35) percent of white students acquired student loans (see Table 1, Column B), over 53 percent of black students acquired student debt, and fewer than 23 percent of

other minorities (which included all students not categorized as white/non-Hispanic or black/non-Hispanic) acquired debt (chi square value of 77.999, $df=5$, $p<.001$, see Table 1, Column G). In addition, there was a significant difference (t-test, $p<.0001$, see Table 1, Column G) in the average age of student loan recipients versus non-recipients. Student loan recipients were younger than non-recipients (28 and 33 years of age respectively.)

In addition, there was a significant difference between the number of loan recipients and non-loan recipients in terms of student level (whether they were in a first professional, masters or doctoral program). Doctoral students were the least likely to acquire student debt; only 11 percent ($N=58$) of all doctoral students received a student loan in 1995-96 (see Table 1, Column B). Twenty-eight (28) percent ($N=351$) of all enrolled masters students acquired student debt during the academic year. Law students were the most likely to acquire debt, with over three-fourths of first professional students (76.2 percent, $N=398$) acquiring student loans during the academic year. These numbers were significantly different (chi square=553.569, $df=2$, $p<.001$, see Table 1, Column G).

The numbers of students acquiring student debt also varied significantly by school of enrollment. Almost three-fourths of the students in the law program acquired loans (74 percent, $N=401$; see Table 1, Column B). This figure is

slightly different from the proportion figure for first professional students, because this particular institution also offers a small Masters program in legal studies separate from the JD program. In contrast, over a third of the graduate students enrolled in the social sciences (36 percent, N=100) acquired student loans and 34 percent (N=165) of business students acquired student debt. Seventeen percent of education students (N=107), 11 percent of marine science students (N=15), and 8 percent of physical science students (N=19) acquired student debt during the 1995-96 academic year. These differences were statistically significant (chi square value=559.304, df=5, $p<.001$; see Table 1, Column G).

Demographics of NPSAS Population

The National Post-Secondary Student Aid Study (NPSAS) is a random survey of graduate students who were enrolled in graduate school during the 1995-96 academic year. These students were from all stages of their education, from first year graduate school to graduating. The survey is a compilation from many data sources. There were 2,766,588 weighted responses included (see Table 2). The demographic information in this table has been compiled in order to assess the comparability of NPSAS demographics with institutional demographics.

Unfortunately, due to the nature of the publicly available Data Analysis System (DAS) software which is

Table 2. Demographics of Graduate Students from NPSAS Data, 1995-96 Academic Year*

	(A)	(B)	(C)	(D)	(E)	(F)
	Loan Recipients Estimate	Percent of Row Total	Students w/o Loans Estimate	Percent of Row Total	Total Weighted Estimate	Percent of Grand Total
Gender						
1 Male	311,324	24.2	975,139	75.8	1,286,463	46.5
2 Female	372,991	25.2	1,107,133	74.8	1,480,125	53.5
Ethnicity						
3 White	520,794	24.9	1,570,747	75.1	2,091,541	75.6
4 Black	65,433	35.3	119,929	64.7	185,361	6.7
5 Other	97,448	19.9	392,239	80.1	489,686	17.7
Level						
6 Masters	344,227	22.1	1,213,362	77.9	1,557,589	56.3
7 Doctoral	66,896	19.5	276,161	80.5	343,057	12.4
8 First Professional**	98,203	30.6	222,721	69.4	320,924	11.6
9 Other	50,687	9.3	494,331	90.7	545,018	19.7
Field						
10 Education	107,864	17.1	522,918	82.9	630,782	22.8
11 Social Sciences	130,741	30.1	303,614	69.9	434,354	15.7
12 Physical Sciences	43,922	12.6	304,668	87.4	348,590	12.6
13 Law	103,847	73.6	37,249	26.4	141,096	5.1
14 Business	94,606	20.6	364,647	79.4	459,254	16.6
15 Other	203,181	27.1	546,564	72.9	749,745	27.1
16 Total	683,347	24.7	2,083,241	75.3	2,766,588	100

* All estimates are computed from the weighted response total and the appropriate percentage distribution.

**Includes all first professional programs, including medicine, veterinary science, etc.

provided by the National Center for Education Statistics and used with the web based NPSAS data, limited statistical results are available. Statistics such as percentages of categorical data and averages (both including missing responses or not including missing responses) of continuous data were available for analysis. However, frequency counts were not available and had to be estimated based on the percentage distributions. In addition, the web-based version of the DAS did not allow for more complex statistical methods such as analysis of variance.

Of the NPSAS weighted sample, 47 percent were male and 76 percent were white (see Table 2, Column F). Fifty six (56) percent of these students were enrolled in masters programs (both terminal and leading to a doctoral program), 12 percent were enrolled at the doctoral level and 12 percent were enrolled in first professional programs. These programs included all first professional programs such as medicine and dentistry and were not limited to only law programs. Twenty (20) percent of the respondents were enrolled in other programs such as certificates, post-masters and post-doctoral degree programs, or had missing or invalid responses (see Table 2, Column F).

According to this national study, the field of education accounted for 23 percent of the graduate student respondents (see Table 2, Column F). The social sciences (which included the humanities) accounted for 16 percent,

business programs accounted for 17 percent, and the physical sciences (including math, engineering and computer science) accounted for 13 percent. Five percent of the respondents were enrolled in law programs. The remaining 27 percent were in either a health profession, other miscellaneous programs, or had missing or invalid program information.

In addition, Table 2 provides estimates from the percentage distributions for the number of students who received student loans during the 1995-96 academic year and the number who did not receive students loans.

Approximately 25 percent of all students surveyed in the NPSAS acquired a student loan during the 1995-96 academic year (see Table 2, Column B, Row 16).

For both males and females in this national sample, approximately 25 percent received student loans during the 1995-96 academic year (see Table 2, Column B). With regard to ethnicity, 25 percent of white students, 35 percent of black students and 20 percent of other minority students acquired student loans (see Table 2, Column B).

A student's degree level (whether they were in a first professional, masters or doctoral program) also had an impact on the percentage of students acquiring loans, according to the national data. Doctoral students were least likely to acquire student debt - only 20 percent of these students received a student loan during the 1995-96 academic year (see Table 2, Column B). Twenty-two (22)

percent of students in masters programs acquired student debt. Thirty-one (31) percent of all first professional students (including law, medicine, dentistry etc.) acquired student loans.

The field in which a student enrolled also was related to the percentage of students acquiring student debt. Almost three-fourths of students in law programs (74 percent) acquired a student loan during the year (see Table 2, Column B). This figure is different from the first professional figure mentioned above because this law figure includes only law programs, the first professional figure includes medicine, dentistry etc.

Following the field of law, the next area with the greatest percentage of loan recipients was the social sciences. Almost a third of the graduate student respondents in the social sciences (30 percent) acquired student loans (see Table 2, Column B). Twenty-one (21) percent of the graduate business students acquired loans. Seventeen (17) percent of education students and 13 percent of physical science students acquired debt. For the category of "other" program (which would include the health professions, miscellaneous programs, and missing or invalid program information) 27 percent of the respondents acquired debt during the 1995-96 academic year.

When comparing Table 1 (institutional information) with Table 2 (national information) the demographics are similar,

but not identical (see Column F of both Table 1 and 2). In both cases, the majorities were female (51 and 54 percent respectively) and were white (84 and 76 percent respectively). The data bases were similar in terms of distribution of degree program: masters students accounted for 55 percent of the students in the institutional data base and 56 percent of the national data base. For both the institutional and national information, the percentages of doctoral and first professional students were similar - for the institutional information, doctoral programs accounted for 23 percent and first professional accounted for 22 percent of the enrolled students. For the national information, the percentages were less than the institutional information but still similar in magnitude in relation to each other (12 percent for both doctoral and first professional programs.) The national information had 20 percent of the respondents with no level indicated or a level other than those listed above.

The distribution of students/respondents according to school/field was similar for the institutional and national information. For both the national and institutional information, the largest plurality of students was from the school/field of education (27 and 23 percent respectively), when excluding the "other" category from the national data base. Except for the program of law, which comprised 24 percent of the institutional information and only 5 percent

of the national information, the remainder of the percentage distributions were similar for the two data bases. The next largest school/field was business (21 percent institutionally, 17 percent nationally), the social sciences (12 percent institutionally, 16 percent nationally), and the physical sciences, including marine science (16 percent institutionally, 13 percent nationally).

From these comparisons, the researcher concludes that the two sources of information are comparable.

Yearly Student Debt Information

The average yearly loan data can be found in Table 3 and are presented in order to answer the questions concerning amount of yearly student debt and the comparability of the debt figures between institutional and national sources. In both cases, the denominator was based on the number of loan recipients, and not all enrollees or respondents. This decision was made in order to get an accurate figure of average debt per student for those who chose to acquire a loan. Given the differences in proportion of students receiving loans depending upon program and level, having a denominator of all students/respondents could falsely deflate the average loan debt. Three analyses were done: the first was for the effect of student level; the second analyzed the effect school of enrollment; the third analysis investigated the full effects of student's level, school, and school by level

Table 3. Yearly Student Debt of Graduate Students and Tests of Significance for Student Level, School, and Level by School, 1995-96

		(A)	(B)	(C)	(D)
		Institutional Information Avg Yearly Loan	Duncan	Significance Tests for Institutional Information - Between Levels, School and School by Level	Comparable NPSAS Information
Level				Duncans's multiple range test df=808, alpha @ .05, each	
1	Doctoral	\$6,991	A	mean significantly different	\$9,869
2	Masters	\$11,135	B	(F=103.75, df=2, p<.0001)	\$9,902
3	First Professional	\$15,611	C		\$16,499
School					
4	Marine Science	\$3,673	A	Duncans's multiple range test	NA
5	Physical Sciences	\$5,757	A	df=805, alpha @ .05, means	\$7,930
6	Social Sciences	\$8,966	B	with same letter are not significantly	\$10,169
7	Education	\$9,064	B	different	\$8,526
8	Business	\$13,665	C	(F=63.39, df=5, p<.0001)	\$10,636
9	Law	\$15,574	C		\$16,394
By School and Level					
Marine Science				Full effects model:	
10	Masters	\$3,293		level: F=115.73, df=2, p<.0001	NA
11	Doctoral	\$3,926		school: F=18.9, df=5, p<.0001	NA
Physical Sciences				Interaction Effects:	
12	Masters	\$5,524		level*school: F=2.82, df=3, p<.0785	\$8,260
13	Doctoral	\$6,997			Low N**
Education					
14	Masters	\$9,056			\$8,392
15	Doctoral	\$9,092			\$9,899
Social Sciences					
	Masters	\$9,815			\$10,828
17	Doctoral	\$5,953			\$9,794
Business					
18	Masters	\$13,665			\$10,736
19	Law	\$15,610			\$16,517
20	Total Average	\$13,046			\$11,946

* Average yearly loan information includes recipients only in denominator. Loan information excludes PLUS loans.

** Low N responses indicates fewer than 30 responses in a cell.

interactions upon average yearly loan figures.

According to the institutional information, doctoral students acquired the smallest loans in a given year, an average of approximately \$7,000 (see Table 3, Column A). Masters students averaged loans of \$11,000. First professional law students averaged over twice as much yearly loan as doctoral students with an average of a little less than \$16,000 of debt accumulated during the year.

National data show a somewhat similar pattern (see Table 3, Column D). Doctoral students and masters students had average yearly loans of about \$9,900. First professional students (which would include the health professions) averaged over \$16,000 of debt for the year.

An analysis of variance on yearly loan averages by student level using the institutional data resulted in significant differences between levels ($F=103.75$, $df=2$, $p<.0001$; see Table 3, Column C). A post hoc test using Duncan's multiple range test revealed that means for all three levels were significantly different from each other for the institutional data (see Table 3, Column B). The average yearly loans for first professional students (\$16,000) was significantly different from that of masters students (\$11,000), which in turn was significantly different from doctoral students (\$7,000).

The analysis of the institutional data by school of study also produced significant differences. Graduate

students in the physical and marine sciences had the lowest average yearly debt, \$6,000 and \$4,000 respectively. Students in education and social science programs both averaged yearly loans of about \$9,000. Students enrolled in programs in law and business averaged loans of a little less than \$16,000 and \$14,000 respectively (see Table 3, Column A).

National data from NPSAS show similar figures (see Table 3, Column D). Students respondents from the physical sciences averaged yearly debt of a little less than \$8,000. (No separate marine science figure was available. These students were categorized under the general category of physical sciences.) Students in the field of education averaged a little less than \$9,000 of yearly student debt. Graduate student respondents in the social sciences averaged student debt of a little over \$10,000. Student respondents in the field of business averaged yearly debt of about \$11,000. Student respondents from the field of law averaged yearly debt of \$16,000.

An analysis of variance of the effect of school of enrollment on loan average (using the institutional data) resulted in significant differences between some schools and no differences between others ($F=63.39$, $df=5$, $p<.0001$; see Table 3, Column C). A post hoc test using Duncan's multiple range test revealed that there was no significant difference between the loan averages of education and social science

students. Neither was there a difference in average debt between physical and marine science students, nor between law and business students. However, each of these groupings were significantly different from each other (see Table 3, Column B). Students in the physical sciences and marine sciences had the lowest amount of debt, averaging approximately \$5,700 and \$3,700 respectively. Education and social science students averaged about \$9,000 of yearly debt. The highest debt was accumulated by business and law students, averaging approximately \$14,000 and \$16, 000 respectively (see Table 3, Column A).

In order to partial out the effects of school and level, and the interaction between the two, a full effects analysis of variance was done. This analysis would determine what portion of the variance from the mean was due to school, to level and to the interactions of school and level. The analysis resulted in significant differences for the main variables school and level but no significant differences for the interaction of school by level (see Table 3, Column C). In other words, the variables level and school accounted for most of the variance between the means of the yearly loan totals, and interactions between these two variables accounted for very little of the significant differences.

For students enrolled in the school of education, both masters and doctoral students averaged about \$9,000 of

student debt in the 95-96 academic year (see Table 3, Column A). For students enrolled in the social sciences, masters students had more debt than doctoral students (a little less than \$10,000 and a little less than \$6,000, respectively.) For students in the physical sciences, the pattern was reversed. Doctoral students in this area averaged greater yearly debt than masters students (about \$7,000 student for doctoral, and about \$5,500 for masters students.) Students enrolled in the marine science program averaged a little more than \$3,000 of yearly loans at the masters level, and a little less than \$4,000 of yearly loans at the doctoral level. Business students averaged a little less than \$14,000 of yearly debt. Law students averaged a little less than \$16,000 of yearly student debt.

National data from NPSAS showed similar yearly debt patterns (see Table 3, Column D). Education students, both at the masters and doctoral level, had average yearly loans of about \$9,000. Similar to the institutional data, masters students in the social sciences acquired more debt than doctoral students (\$11,000 and \$10,000 respectively.) For students enrolled in the physical sciences, masters students averaged yearly debt of a little more than \$8,000. A yearly debt figure was not available for doctoral students in physical sciences due to insufficient responses (less than 30). From the national data, business students averaged loans of about \$11,000, while law students averaged yearly

student loans of a little over \$16,000.

Using institutional data, an analysis of variance for the main variables of level and school resulted in significant differences, but the interaction of level and school on yearly student loans was not significant. The variable of student level was highly significant in predicting student loan amount ($F=115.73$, $df=2$, $p<.0001$; see Table 3, Column C). The variable of school was also highly significant in predicting student loan amount ($F=18.9$, $df=5$, $p<.0001$; see Table 3, Column C). In other words, these two variables accounted for most of the variance. The interaction of school and level was not statistically significant ($F=2.82$, $df=3$, $p<.0785$; see Table 3, Column C).

From Table 3 the results show that the institutional and national information on yearly student loans is comparable. In addition, the variables level and school are the primary causes of variance in amount of yearly student loans. Interaction effects were not significant.

Yearly Student Debt and Cumulative Debt Information from National Data

Table 4 presents a compilation of information from the NPSAS. Once again, all loan information averages are based on a denominator of the number of loan recipients, not all respondents. The purpose of this table is to present two types of loan information available from the national data base and to present them using different selection criteria.

Table 4. Yearly and Cumulative Student Debt of Graduate Students, NPSAS Information 1995-96*

	(A)	(B)	(C)	(D)	(E)
	Average Yearly Loan	Average Yearly Loan for Doctoral 1 Institutions	Average Cumulative Loan	Average Cumulative Loan for Doc 1 Institutions	Average Cumulative Loan Finished
Level					
1 Masters	\$9,902	\$11,741	\$15,161	\$16,567	\$18,978
2 Doctoral	\$9,869	\$1,301	\$22,070	\$28,377	\$1,350
3 First Professional**	\$16,499	\$17,885	\$38,859	\$41,677	\$53,662
Field					
4 Education	\$8,526	\$10,040	\$12,805	\$18,204	\$16,732
5 Social Sciences	\$10,169	\$12,518	\$19,549	\$24,077	\$22,183
6 Physical Sciences	\$7,930	low n	\$13,771	\$9,571	\$15,821
7 Law***	\$16,394	\$18,737	\$37,062	\$41,548	\$49,193
8 Business	\$10,636	\$14,185	\$15,956	\$17,619	\$18,929
By Field and Level					
Education					
9 Masters	\$8,392	\$10,286	\$11,966	\$16,249	\$15,883
10 Doctoral	\$9,899	low n	\$21,898	low n	low n
Social Sciences					
11 Masters	\$10,628	\$12,483	\$17,756	\$18,884	\$23,050
12 Doctoral	\$9,794	low n	\$24,705	\$34,081	low n
Physical Sciences					
13 Masters	\$8,260	low n	\$14,683	low n	\$17,118
14 Doctoral	low n	low n	\$13,344	low n	low n
15 Law****	\$16,517	\$18,852	\$37,527	\$43,354	\$49,415
Business					
16 Masters	\$10,736	\$14,134	\$15,224	\$17,567	\$18,616
17 Total Average	\$11,946	\$12,717	\$19,496	\$19,925	\$24,806

* Average information includes recipients only; excludes PLUS loans; cumulative information includes both undergraduate and graduate debt.

** First professional includes law, medicine, and all other first professional programs.

***Includes masters of law students, and not just first professional law.

****First professional law students only.

Since the primary purpose of this research was to assess cumulative student debt, this table introduces national cumulative student debt information (see Table 4, columns C,D,E). Average cumulative loan is the compilation of student debt acquired at both the undergraduate and graduate level. This table presents the average yearly student loan information from Table 3 and average cumulative student loan information, using different selection criteria.

The first selection criterion was related to institutional type. For both the yearly and cumulative loan figures (see Table 4, Column A and C), the overall averages include respondents who may be very different from the students represented in the institutional data. The NPSAS respondents may have attended private or technical institutions, attended an institution with a different Carnegie classification, or attended an institution from a different geographical region. Therefore both yearly and cumulative debt figures were filtered for choosing only Doctoral I respondents.

The second selection criterion was related to degree completion. Similar to the institutional data, NPSAS data includes students at all stages of graduate work, ranging from first-year students to students graduating during the academic year. A selection criterion was used to include only those students who completed their degree during the academic year, and therefore had accumulated the maximum

amount of student debt.

The purpose of Table 4 is threefold. Its first purpose is to highlight the problems of filtering the national information to make it comparable to institutional information. When filtering the national data to include only students attending a Doctoral I institution, the number of low N cells increases (see Table 4, Column B and D). Average loan information by student level or by student field were available, but further detail on loan averages by level and field resulted in missing information.

The second purpose for Table 4 is to answer the initial two research questions. The first question asked what is the average cumulative student debt overall? The second question asked for an analysis of the average cumulative student debt by level and field.

The third purpose of Table 4 is to gather average loan data on students who completed their degree program and thereby had the maximum amount of student loans. Table 4, Column E provides cumulative loan information for students completing their degree within the academic year, regardless of the institution attended. However, using this selection criterion to include only students who completed a program once again resulted in insufficient responses. Cumulative loan information was available for field and level, but interaction information (the different fields by level) also resulted in a number of missing cells. Unfortunately, the

information filtered for students who graduated is probably the most accurate in terms of cumulative student loan, because it reflects the true cumulative loan of students at the end of their program.

Filtering for Doctoral I Respondents. Aggregate average yearly student loan amounts for students attending Doctoral I institutions was slightly higher than for the overall average (\$12,700 compared to \$12,000, respectively; see Table 4, Column A and B, Row 17). However, when further analyzing the NPSAS information by level and field, there was no consistent pattern. For masters and first professional respondents, yearly loan averages were higher for students attending Doctoral I institutions (\$12,000 for masters and \$18,000 for first professional students in Doctoral I institutions; compared to \$10,000 and \$17,000 for the overall NPSAS average, see Table 4, Column and B). However, the yearly loan average was lower for doctoral students at Doctoral I institutions as compared to the total NPSAS (\$1,300 compared to \$9,900, respectively).

When examining student loan information by program of study, student yearly loan averages for students attending Doctoral I institutions were consistently higher than the overall sample (see Table 4, Column A and B, rows 4-8). The one exception was for students attending Doctoral I institutions who enrolled in physical science programs. Yearly loan information was unavailable for this group due

to insufficient number of responses. Average yearly loans for respondents attending Doctoral I institutions ranged from \$1500 to \$4000 higher than the overall NPSAS sample (see Table 4, Column A and B).

Determining Average Cumulative Student Debt. Average cumulative loan information for the NPSAS population is also presented in Table 4. Once again, filtering the NPSAS information for inclusion of only students who are attending Doctoral I institutions (see Table 4, Column D) or for students completing their degree during the 1995-96 academic year (see Table 4, Column E), resulted in an insufficient number of responses, though there were not as many as for the yearly loan debt information. Students may have cumulative student debt without acquiring student debt for that year.

When comparing the average cumulative loan for the total NPSAS sample with the respondents attending Doctoral I institutions, average cumulative student loan was greater for students attending Doctoral I institutions for all levels and all fields of study (see Table 4, Column C and D). The only exception was for the physical sciences. In this case, physical science respondents attending Doctoral I institutions had lower average cumulative debt than the overall sample (\$10,000 for Doctoral I respondents and \$14,000 for the national sample).

Filtering for Students Completing Their Degree Program.

As expected, on the aggregate the average cumulative loans for students completing their degree in the 1995-96 year were consistently higher than the average cumulative student loans for the overall NPSAS sample; \$19,500 in cumulative loans for the national sample and \$24,800 for the students graduating during the year (see Table 4, Column E, Row 17).

Further analysis of average cumulative loan information by level was consistent with the total average. Cumulative loans were higher for masters and first professional students completing their degree, than the loans for masters and first professional students from the total NPSAS data. The only exception was for doctoral students, who averaged a cumulative student debt of only about \$1000, which was much lower than the overall figure of \$22,000 for the NPSAS sample. However, the \$1000 figure may be an anomaly due to insufficient responses. There were no cumulative loan averages available for any of the specific doctoral programs.

Respondents from masters programs had an average debt of \$19,000 at graduation, compared to the aggregate figure of \$15,000. Respondents from first professional programs had an average debt of close to \$54,000 at graduation, compared to the aggregate figure of \$39,000.

Average cumulative debt of students who had graduated

was greater for all programs of study as compared to the aggregated NPSAS total. The average cumulative debt was \$16,000 for the physical sciences, \$17,000 for education, \$19,000 for business, \$22,000 for social sciences to \$49,000 for law respondents (see Table 4, Column E, Rows 4-8).

Overall, the average cumulative student debt for graduate students was \$15,000 for masters, \$22,000 for doctoral, and \$39,000 for first professional students (see Table 4, Column C). For respondents from Doctoral I institutions, the debt was \$16,500 for masters, \$28,000 for doctoral and \$42,000 for first professional (see Table 4, Column D). For respondents who graduated, the average debt was \$19,000 for masters, \$1000 for doctoral, and \$54,000 for first professional respondents (see Table 4, Column E).

Average cumulative student debt for the overall sample when examined by field ranged from a low of about \$13,000 for students enrolled in the field of education to a high of about \$37,000 for students enrolled in law programs (see Table 4, Column C). For respondents from Doctoral I institutions, average debt ranged from \$10,000 for the physical sciences to \$42,000 for respondents from law programs (see Table 4, Column D). For respondents who finished their studies, average cumulative debt ranged from \$16,000 for students in physical science programs, to \$49,000 for students in law programs (see Table 4, Column E).

Three sets of information could be used for the further analysis of debt burden: the total NPSAS information, the filtered Doctoral I information or the filtered degree completed information. Because of frequent low N cells (due to an insufficient number of responses) for average cumulative loan when filtering for Doctoral I institutions, or when filtering for students who had completed their degree program, the researcher decided that for the further investigation of debt burden the average cumulative loan information from the total NPSAS would be used (see Table 4, Column C).

Average Cumulative Student Debt, Consumer Debt, Starting Salaries and Debt Burden

Table 5 presents a compilation of information from a number of sources. Its purpose is to answer the primary question of debt burden by level and program of study.

Average cumulative student debt information (Table 5, Column A) comes from the overall NPSAS data. Cumulative student debt information is presented in two different ways in Table 5. The first column presents the total cumulative student loan figure. Column B provides the monthly loan payment necessary for the average cumulative student debt using a standard 10-year repayment period, and a standard Stafford loan rate of 8.25 percent (the 1995-96 rate). This is approximately the payment that a student would have to make in order to pay off the loan in the 10 year time

Table 5. Student Debt Burden and Total Debt Burden Calculations: Average Cumulative Debt (Yearly and Monthly), Starting Salaries, Consumer Debt Percentage, and Debt Burden Calculations, 1995-96

	(A)	(B)	(C)	(D)	(E)	(F)	(G)
Field/ Level	Average Cumulative Student Debt	Monthly Payment using 10yrs Stafford Loan Interest Rate*	Average Gross Starting Salary **	Monthly Gross Starting Salary	Student Debt Percentage of Income	Consumer Debt Percentage of Income***	Total Debt Percentage of Income
Education							
1 Masters	\$11,966	\$147	\$29,103	\$2,425	6.06%	7.14%	13.20%
2 Doctoral	\$21,898	\$269	\$48,435	\$4,036	6.66%	7.14%	13.80%
Social Sciences							
3 Masters	\$17,756	\$218	\$28,269	\$2,356	9.25%	7.14%	16.39%
4 Doctoral	\$24,705	\$303	\$35,263	\$2,939	10.31%	7.14%	17.45%
Physical Sciences							
5 Masters	\$14,683	\$180	\$41,245	\$3,437	5.24%	7.14%	12.38%
6 Doctoral	\$13,344	\$164	\$51,345	\$4,279	3.83%	7.14%	10.97%
7 Law	\$37,527	\$460	\$45,590	\$3,799	12.11%	7.14%	19.25%
Business							
8 Masters	\$15,224	\$187	\$38,804	\$3,234	5.78%	7.14%	12.92%

* Stafford loan rate for 1995-96 was 8.25%.

** From NACE Salary Survey for 95-96 for all but Law. Law figure from NALP report for 1995.

***Consumer debt information from Federal Reserve Board quarterly calculations of household debt - average of the last 2 quarters of 95 and the first 2 quarters of 96. It is acknowledged that this is a very rough measure of consumer debt and that a better measure is needed for a more accurate analysis.

period.

Columns C and D provide starting salary information in two different ways. Average gross starting salaries (Table 5, Column C) come from two sources of information. Starting salary information for all categories except for law came from the 1995-96 salary survey done by the National Association of Colleges and Employers (NACE). (Business starting salaries were based on the areas of accounting, economics and marketing, and MBA recipients with one year or less of professional experience). Starting salary information for law students for the 1995-96 academic year came from the 1995 salary survey done by the National Association for Law Placement. Column C presents the starting salaries for the 1995-96 year by level and field. Column D of Table 5 takes the gross salary figure and converts it to a monthly figure by level and field.

Columns E, F and G of Table 5 present debt burden calculations. Column E represents the student debt burden as a percentage of monthly gross salary. In other words, what is the percentage of income needed to fulfill just student loan obligations?

Column F presents the average consumer debt figure as a percentage of income as calculated by the Federal Reserve Board for Household Debt Service Burden. The consumer debt burden figure is a percentage of personal disposable income. The percentage of consumer debt for the last 2 quarters of

1995 and the first 2 quarters of 1996 were averaged to get the single figure of 7.14 percent. This is the average percentage that is used for payments to credit cards or car payments.

Column G presents the total debt burden - the monthly total loan payments as a percentage of total monthly salary. This last column totals the student debt burden percentage calculated in the Column E with the consumer debt burden percentage of Column F to get a total debt burden percentage (Column G).

Table 5, Column E reveals that student debt burden alone ranges from a low of 3.83 percent of gross monthly starting salary to a high of 12.11 percent of gross monthly starting salary. Doctoral students in the physical sciences had the lowest amount of student debt burden (3.83%) and law students had the highest amount of student debt burden (12.11%). In addition, doctoral students enrolled in social science programs also had debt burdens over 10 percent of gross income (10.31%).

When average consumer debt is added to student loan debt, the total debt burden (Table 5, Column G) for all categories of students is over 10 percent of gross income. Total debt burden ranges from a low of 10.97 percent for doctoral students in the physical sciences, to a high of 19.25 percent of gross income for law students.

Using a liberal banking standard of 10 percent of gross

income as the threshold for debt affordability, student loan debt alone for law students and for doctoral students in the social sciences is unaffordable (see Table 5, Column E). When student loan debt burden is combined with an average consumer debt burden (which would include payments for cars and credit cards, but exclude mortgage payments), all categories of students cross the threshold of debt burden affordability. In other words, for students with student loans, regardless of level and programs of study, adding average consumer debt to student loan debt causes the debt burden to exceed the banking threshold of 10 percent of income to debt repayments.

Further Analyses

Two additional research questions emerged from the results of the analysis. The first question dealt with age as a possible covariate, the second question dealt with the possibility that the law/first professional programs were skewing the results.

The first question was whether the age of a student had a significant effect on student loans. Table 1 of the institutional information shows that there was a significant difference in average age between those students who received loans (28 years of age) and those who did not (33 years of age.) In other words, younger students were more likely to acquire debt in graduate school. In addition, a general linear regression model between age and yearly loan

totals revealed significant differences ($F=9.38$, $df=1$, $p<.0023$). Younger students were more likely to have larger yearly debt figures.

A further examination of the variable age indicated that student level had a significant relationship to the age of a student ($F=41.85$, $df=2$, $p<.0001$). A Duncan multiple range test on age by student level indicated that the average age for first professional students was 26 years; for masters students the average age was 29; for doctoral students the average age was 32. Each mean was significantly different from each other.

These results lead to speculation that age and not student level was driving the significant differences in loan amount. A further analysis to determine the effect of age on the amount of yearly debt was conducted - in other words, controlling for age, the variables level, school, and school by level were again analyzed for their predictive value for amount of yearly debt. An analysis of covariance was done for the full effects correcting for age. The variables of student level and school of enrollment were significant predictors of loan amount (for level: $F=116.34$, $df=2$, $p<.0001$; for school: $F=18.9$, $df=5$, $p<.0001$). The school by level interaction was not significant ($F=2.28$, $df=3$, $p<.0784$). The variance due to age was not significant ($F=.34$, $df=1$, $p<.5617$). In other words, controlling for age, a student's level and school had the greatest

predictive value of a student's student loan amount.

A second research question emerged. Were the first professional students in the law program the root of all the significant differences in age and in the amount of yearly loan? A full effects analysis of covariance was done again - controlling for age, and using the variables level and school with the dependent variable being yearly loan. However, for this test, all law/first professional students were deleted from the analysis. If law students were truly the source of the significant differences, then by deleting them from the analysis a different pattern of variance should emerge. However, even after deleting law students from the analysis, the two main effects of level and school still had significant differences in terms of yearly loan, controlling for age (for level: $F=36.25$, $df=1$, $p<.0001$; for school: $F=26.15$, $df=4$, $p<.0001$). School by level showed no significant differences ($F=2.52$, $df=3$, $p<.05476$), nor did age ($F=.89$, $df=1$, $p<.3449$). A Duncan post hoc test was not done, since results showed no difference between the analysis done with law students and without law students. While it may appear that first professional students and age may have been the source of the variance, analysis shows this is not true. The main variables, student level and school of enrollment were the sources of the variance in yearly loan sum.

Summary of Results

The preceding five tables have answered the research questions proposed. The first question asked what was the average cumulative and yearly student loan. The NPSAS data revealed that the average cumulative debt that a student is required to repay is \$20,000. For students completing their degree the average was \$25,000, for Doctoral I students the average was \$20,000 (see Table 4, Row 17).

Yearly student debt was calculated to be \$13,000 for the institutional information and \$12,000 for NPSAS information. For Doctoral I students the average yearly debt was \$13,000.

The second and third question asked if there were differences in student loan amount based on level and program of study. There were differences in cumulative loan amount based on level and field. From the NPSAS information it was concluded that masters students averaged \$15,000, doctoral students averaged \$22,000 and first professional students averaged \$39,000 of cumulative debt (See Table 4, Rows 1-3). Cumulative loans ranged from a low of \$13,000 for education students to a high of \$37,000 for law students (see Table 4, Rows 4-8).

The fourth question dealt with the proportions of students acquiring debt, both on the whole and by level and school. Table 1 and Table 2 answer the question of the

proportion of students acquiring loans. On the average, 35 percent of students acquired loans (according to institutional data) (Table 1, Column B, Row 15). Twenty-five (25) percent of NPSAS respondents acquired loans (Table 2, Column B, Row 16). In addition, similar patterns between the national and institutional information for the variables of level and school/field were found. Doctoral students in the physical sciences were the least likely to acquire debt (8 percent from institutional information and 13 percent from national information.) Students from law programs were most likely to acquire debt (74 percent according to institutional and national information).

The fifth research question addressed the comparability of the national and institutional information. Table 3 shows that the national and institutional data are comparable for yearly loan information. Average yearly loan (according to institutional information) was \$13,046, while average yearly loan (according to national information) was \$11,946. Similar patterns in loan amount were found for the main variables level and field.

The final and crucial question concerned student debt burden and cumulative debt burden, both on the whole and by level and field. Table 5 shows that the debt burden of students was influenced by starting salaries and amount of the student loan. Student debt burden ranged from a low of 3.83 percent of salary for doctoral students in the physical

sciences, to a high of 12.11 percent of salary for law students. Law students and doctoral students in the social sciences had debt burdens over the critical banking threshold of 10 percent of monthly income (see Table 5, column E.) When combining student debt with consumer debt, all levels and fields of respondents exceeded the banking limit of 10 percent and ranged from a low of 10.97 percent for doctoral students in the physical sciences, to a high of 19.25 percent for law students.

From the preceding analysis, the total debt burden of graduate students is unaffordable when combining both student and consumer debt. When examining student debt alone, the student loan burdens for most graduate students is affordable. However, for students in law programs and in doctoral programs for the social sciences, the payments required to fulfill their obligations for their student loans is above banking guidelines.

Chapter 5: Conclusions

The goal of this research has been to investigate the debt with which graduate students are faced upon completion of their education. Ultimately, is this debt affordable? From the preceding results, the answer is no. Graduate students who have taken out student loans are saddled with large amounts of cumulative student debt, and when student loan debt is combined with normal consumer debt (i.e. credit card and car payments), the total exceeds the banking standard of 8-10 percent of income as a threshold for affordability. For those students who acquire educational loans to pay for their education, the implications are serious. Decisions concerning marriage, family, home, and career may be adversely affected due to the financial pressures of the student loans. Students will need to have financial options that will make their payments more affordable - options such as income contingent loans (Baum 1998), Americorp, refinanced loans for a longer term, or the use of home equity mortgages. For educational institutions and for professions, the implications of these results are equally compelling.

The Results

For the 1995-96 academic year, graduate students were entering the job market with cumulative student debts

ranging on the average from a low of \$12,000 for a student who pursued a masters in education to \$37,000 for a student who pursued a law degree (NPSAS information). The first professional debt figure is similar to the \$40,000 reported by Geraghty (1997). However, this is a much lower figure than that reported by the NCES "Four Years After Survey" of undergraduates. In their 2000 report, undergraduates who went on to get a masters accumulated \$20,800 in debt, and first professional students accumulated \$63,400 in debt (NCES, 2000).

However, this may not be a discrepancy. The NPSAS data were collected on students at all stages of graduate work, from first year to last year. The NCES 2000 undergraduate report, by surveying students four years after graduation, probably gathered more accurate total debt figures, since most masters and first professional programs are less than four years, and these students would have graduated from post-baccalaureate programs by that time.

1995-96 starting salaries for graduates with post-baccalaureate degrees ranged on the average from a low of \$28,000 for graduates with a masters in the social sciences, to a high of \$51,000 for graduates with a doctorate in the physical sciences. These figures are only slightly higher than the 1993 starting salary figures for graduates as reported by NCES (NCES-IND33, 1998; NCES, 1996).

Taking into consideration just the student loan portion

of the combined debt, two groups of students exceeded the banking limit of ten percent of gross income committed to debt payment. Doctoral students in the social sciences average \$25,000 of cumulative student debt (a monthly payment of \$303) and have an average starting salary of \$35,000 (a monthly salary of \$2,939) resulting in a debt burden of 10 percent. Law students average close to \$38,000 of cumulative student debt (a monthly payment of \$460) and have an average starting salary of \$46,000 (a monthly salary of \$3,800) resulting in a debt burden of 12 percent. The monthly salary figures are similar to those reported by Baum (1996), Zusman (1994) and others.

At the other extreme, doctoral students in the physical sciences average \$13,000 of student debt, but have average starting salaries of \$51,000, resulting in the lowest amount of debt burden - 3.83 percent of income.

However, when average consumer debt percentages are added to student loan percentages, all categories of students (for all levels and fields) exceeded the banking threshold for debt burdens. The debt burdens ranged from a low of 11 percent of monthly salary for doctoral students in the physical sciences to 19 percent of monthly salaries for law students. In other words, students at all levels and in all fields addressed in this research would have difficulty making the required student and consumer debt payments. Alternate means of financing debt will be needed, or

financial choices will need to be made.

The good news is that on the average only 35 percent (institutional data) and 25 percent (NPSAS data) of enrolled graduate students acquire student debt. These figures are much lower than the 50 percent figure reported by the NCES in their study of undergraduates "Four Years After College" (NCES 2000) and the 44 percent reported by the NCES in 1995. The proportional differences between institutional, NPSAS and NCES(1995) information for students acquiring loans needs to be examined further.

The discrepancy in proportion of students acquiring debt between institutional data and that found with the NPSAS data is understandable given that this particular institution has a relatively large first professional program, and the NPSAS data has a much smaller proportion of first professional students in their population (a large proportion of first professional students acquire debt) (NCES, 1995). In addition, the NCES states that the undergraduate study was not comprehensive and may not be indicative of true borrowing patterns. They suggest that borrowing may be higher than reported (in both the number of students and the amount.) In addition, the undergraduate NCES study eliminated from its analysis any student with a debt burden of more than 50 percent of salary (NCES, 2000).

According to the institutional data, there were significant differences between those students who took out

loans and those who did not. More males than females acquired debt (38 and 32 percent respectively); and more black students than white or other minority students acquired debt (53, 35 and 23 percent respectively). NPSAS data showed a similar pattern. Further analysis of the effect of certain demographics on acquiring loans is needed.

More significantly, there was a relationship between a student's educational level and their likelihood of acquiring debt. According to institutional data, over three-fourths (76 percent) of all law students acquire debt. Only about a quarter of masters students acquire debt (28 percent) and only about one in ten doctoral students (11 percent) acquire debt. Perhaps doctoral students, (and to a lesser degree masters students) were receiving financial aid packages that made student loans less necessary. Information about total financial aid packages of graduate students is available in the NPSAS data, and further analysis of these packages as it relates to loans needs to be done.

NPSAS data showed a similar pattern for proportions of students acquiring debt at the masters, doctoral and first professional level-law (22, 20 and 74%, respectively). (First professional can include other programs such as medicine and dentistry. This analysis focused only on law first professionals.) However, these percentages are different than what was found in the NCES 2000 report on

undergraduates who subsequently enrolled in graduate school. The NCES 2000 study reported that 83 percent of students in law programs, 42 percent of students in masters programs and 58 percent of students in doctoral programs acquired debt at some point (NCES, 2000). Further examination between the findings of the NCES 2000 report and institutional information is warranted.

In addition, there was a significant relationship between the field the student chose to pursue and the likelihood of acquiring debt. According to institutional data, students in law programs were the most likely to acquire debt (74 percent). Students graduating from the physical sciences were the least likely to acquire debt (8 percent). Seventeen percent (17) of education students acquired debt, and almost a third of students in the areas of business or the social sciences took on debt. Once again, the low percentage of students in the physical sciences acquiring debt may be attributable to more generous financial aid packages and research grants that support students studying in those areas. This pattern of the proportion of students acquiring debt by field of study was similar for the NPSAS information.

Not only were there significant differences in the proportion of students acquiring debt by level and school, there were significant differences in the amount of yearly student debt by level and school. This is especially

interesting given that this analysis was done on data from one institution. Students in education, the social sciences, the physical sciences, and marine science all had the same tuition, yet had in some cases significantly different average yearly loan amounts. Tuition at the business school was slightly higher (about \$300 for the regular session [which is the fall and spring semesters]), and law tuition was higher yet (an additional \$700 for the regular session) and could account for some of the significant differences in yearly loan amount between programs of study. However, the \$700 in additional tuition charges for law students can not explain the difference of almost \$7,000 between the average yearly loan for education students (\$9,000) and the average yearly loan for law students (\$16,000). Further analysis is needed to determine how much tuition charges are influencing loan amounts, and to determine what other factors (such as other financial aid awards, and in-state/out-of-state residency) are contributing to the discrepancies.

According to the analysis of the institutional data, there were significant differences in the amount of loans acquired by level and school. First professional students (with their higher tuition) had the largest average yearly loans (\$16,000) as compared to masters (\$11,000) or doctoral students (\$7,000). This is similar to the findings of the NPSAS 1995 study - with reported average yearly loans of

\$14,000 for first professional, \$9,000 for doctoral and \$7,000 for masters students (NCES-NPSAS, 1995).

Business students had the next highest yearly loan average (\$14,000) - which also may be attributed in part to their higher tuition. The first professional and business average yearly loan amounts were not significantly different from each other (according to institutional data), but were significantly different in comparison to the other schools.

However, any remaining differences between average yearly loan amounts for the remaining areas of education, social sciences, physical sciences, and marine science can not be attributed totally to differences in tuition. The average yearly loan for marine science students was \$3,600. For physical science students it was \$5,700. (These averages were not statistically different from each other but, were significantly different from the areas of education, social sciences, business and law.) The average yearly loan for education and social science students was about \$9,000. (These averages were not different from each other, but were different from the other schools.)

From these results, it appears that tuition may play a factor in loan amount, but that other influences such as institutional financial aid policies, in-state/out-of-state residency of students and the availability of grants may have a significant impact on the amount of loans a student acquires, and whether a student needs to obtain a loan.

Eight percent of students in the physical sciences acquired debt, and the yearly debt they acquired was minimal: about \$5,800. Thirty-six (36) percent of students in the social sciences acquired debt, and the yearly debt they acquire was close to \$9,000. Yet, both of these programs have the same tuition.

Programs which have higher tuition, such as business and law, also have correspondingly larger average yearly loans. Interestingly, the proportion of students acquiring debt is different with only a third of business students and three fourths of law students acquiring debt. Some other factor besides tuition may be accounting for the difference - business students may be older, possibly working part-time, or possibly attending as part of an employee training program. Further analysis is warranted.

Further Research

Many issues related to a graduates' debt burden need to be researched further. Student age, which was hypothesized to have an effect on average loan amounts, did not make a significant difference in predicting student loan amount. A student's educational level and the program of study were the significant determinants of yearly student loan amounts. And as such, those factors that covary with level and program of study need to be investigated.

Tuition is another factor that needs further investigation. Tuitions vary between different programs -

with first professional and business programs having higher rates than other programs such as education or the physical sciences. Do differences in tuition significantly affect debt accumulation? We have seen that yearly loan amounts are related to school of enrollment - in this institutional case, the law program has the highest tuition and the highest loan amount. However, tuition can not be the only factor in predicting average loan amount. According to institutional data, four programs of study had the same tuition but significantly different average yearly loan amounts. A re-analysis of loan amount while controlling for tuition would be enlightening.

Another issue that needs to be investigated is the effect that institution type may have on loan accumulation. Table 4 (Chapter 4) presented the yearly and cumulative loan information from the NPSAS data using different filtering criteria. It is apparent that filtering the NPSAS data for similarity to the institutional data increased the number of cells with low N responses (with NPSAS, less than 30).

Another important filter that calls for further research is the issue of tuition at public vs. private institutions. Public institutions are state supported and therefore result in lower tuitions, on the average, than private institutions. The preceding analysis included both public and private institutions. A re-analysis separating public from private institutions (and their different

tuitions) may be helpful in understanding debt burden. This is especially important given the above speculation that tuition is a large factor in predicting yearly loan accumulation.

In addition, the financial aid packages and grants that are awarded by institutions to graduate students may have an effect on the accumulation of debt. Students in the physical sciences may be supported through research grants and other financial packages that are not available to students in the social sciences and humanities. A deeper analysis of the other financial aid awarded to graduate students such as tuition waivers, grants, and scholarships and its effect on student debt is needed.

Lastly, this study needs to be done again with more recent data, and including all first professional programs - especially the health professions. Economic conditions have changed since 1995-96. Tuitions have continued to increase. Starting salaries may be different now as compared to 1995-96. The National Post-Secondary Student Aid Study needs to be done again to permit this analysis.

Implications for the Graduate Student

The conclusions of Baum(1998), Keynes(1995), and Leslie and Brinkman(1993) focused on the issue of undergraduate affordability and concluded for the most part that debt burden was affordable for undergraduates. The picture for graduate students revealed by this study is not as rosy.

Many graduate students are entering the workforce with large amounts of debt.

For those students who need loans to complete their education, the price of their education may not be affordable in the short term. Important decisions about family, home, and career may be affected by financial considerations related to student debt. Students may put off having children and purchasing homes. They may put off credit card purchases and new cars. They may be more likely to follow lucrative careers rather than careers related to their talent or interest, due to accumulated debt.

The NCES 2000 report on undergraduates found that some life choices will be affected by debt (NCES 2000). They found that borrowing by undergraduates did not affect the proportion of students getting married or those purchasing cars when surveyed four years after their post baccalaureate graduation. On the contrary, getting married appeared to reduce debt burden (NCES, 2000). They did not assess the impact of student debt on the likelihood of starting a family, which is a major financial investment.

On the average, the NCES reported no statistically significant differences between undergraduates who borrowed and enrollment in graduate education. However, there was an effect on enrollment in further education for undergraduates who borrowed \$5000 or more in comparison to undergraduates who borrowed less than \$5000. Unfortunately, according to

their study, the average undergraduate borrower owed \$7,100.

But in the final analysis, cars and homes and purchased goods can be repossessed, while a degree can not. When students with unaffordable debt burden are forced to make choices in payments, the student loan may not be the priority. Ten year student loans may be refinanced for longer periods of time with higher interest rates, thus leading the student even further into debt for longer periods of time. They may pursue alternate means of financing their student debt through the use of home equity loans. The change in tax law to allow a tax deduction on the interest paid on student loans, and special consideration for home equity loans used for educational purposes, would encourage borrowers to refinance to more favorable and affordable terms.

Graduates may convert their 10-year term loans to 30-year loans. With an average age of 28 for loan recipients (institutional data), graduates who refinance their debt for a 30 year period in order to make the payments affordable, will be approaching retirement at the same time the student loan is paid off. Other students may default.

Another scenario to consider is that choices about whether to pursue higher education hinges not only on future salary considerations, but on other factors (Crosby, 2000). Despite the high cost of graduate education, and the debt burden assumed by students, graduate education is still in

demand. Students attend post-baccalaureate education for more than financial reasons, and are willing to accumulate debt to fulfill these reasons.

As stated previously, the good news is that only about a quarter of all graduate students acquired debt in 1995-96 (NPSAS information). However, as tuition has increased, and the availability of non-loan based financial aid decreased, the proportion of students taking loans may increase.

The results of this research do not bode well for graduate students from lower socio-economic status or minorities. Graduate students from lower socio-economic status may be forced to choose a program of study based on its potential lucrativeness, rather than based on the student's interest and talent. Or the student may choose not to attend graduate school at all. Education, which has been the cornerstone in our society for individual upward mobility, may be unaffordable to the very students education is supposed to be helping the most.

Implications for Institutions and Professions

The implications of this research for educational institutions and the professions are equally compelling. Educational institutions need to re-examine their tuition and financial aid policies in light of this study's findings. Financial institutions need to prepare for possible increased defaults and increased needs for refinancing of student loans over longer periods of time.

Policy makers need to be made aware of the impact that student loans will have on the future leaders of society.

Educational institutions need to re-examine their methods of setting tuition. The presumption that tuition for first professional programs can be raised without consequence, because graduates of first professional programs can afford the necessary loan payments upon graduation, is simply not true. Institutions need to re-examine their financial aid policies in light of affordability. Institutions need to examine the total financial aid packages awarded to students and their effect on loans. Doctoral programs in the social sciences (which had the second highest debt burden after law students) need to find alternate means for funding their students. If they do not, these programs may start losing enrollments.

The professions need to prepare for possible shortages of qualified personnel. Graduates from education programs may choose more lucrative non-education careers, merely to pay off debt. The current teacher shortage may become exacerbated, if the loans an education student is required to bear outweigh the benefits of the future salary. Future lawyers need to be counseled on the impact of large debt.

Financial institutions need to continue to offer a wide array of refinancing options in order to make student debt payments more affordable. The rate of undergraduate student loan defaults has been steady (NCRFPE,1993), for

first professionals there has been a slight increase (Geraghty, 1997). It may rise as the number of students entering graduate school increases, and the number of graduate students acquiring loans increases. Educational savings plans may need to be emphasized.

Kennickell (1997) reports that nationally there has been a decrease in the amount of savings from 5.9 percent of income in 1992 to 4.7 percent in 1995. However, there was an increase in the number of people reporting that the savings were for educational purposes. From 1989-1995, the median value of a primary residence increased by 4.5 percent, but the median amount borrowed on home equity rose 30 percent. Kennickell (1997) conjectured that families were using more of their home equity for purchases and investments (such as education).

Student financial aid policy makers need to have a better understanding of the complex relationship between tuition, financial aid packages, student demographics and loans. Financial aid policies and the economic market have a great effect on student debt burden. There needs to be a clearer understanding of the relationship between financial aid policies and the public's perception on the use of graduate education. Ultimately this may effect the job market.

Summary

The purpose of this research has not been to question

the long-term benefit of post baccalaureate education. Education, at any level, is a good thing. The purpose of this research was to assess the short-term affordability of graduate education for those students needing to acquire loans. Thankfully, most graduate students do not need loans. But there are significant differences in the proportion of borrowers vs non-borrowers between different educational levels and programs.

For those students who do acquire loans, the short-term debt is often unaffordable. For borrowers, decisions may need to be made about how to best handle their debt burden. Alternate terms of financing may need to be used. If steps are not taken, the long-term, life-time benefit of higher education may become concurrent with a long-term, life-time loan payment for borrowers.

Bibliography

Baum, S. "New Directions in Student Loans: Inter-generational Equity", Commissioned Paper, 1998.

<http://www.ed.gov/offices/OUS/eval/baum.html>

Baum, S. "Is the Student Loan Burden Really to Heavy" in Educational Records, Winter 1996.

Burd, S. "Do Federal Loans Encourage Tuition Increases?" in Chronicle of Higher Education, 05/30/97.

Burd, S., Healy, P., Lively, K., and Shea C. "The Widening Gap in Higher Education: A Special Report" in Chronicle of Higher Education, 6/14/96, A10.

Choy, S. and Kagehiro, S. "Student Financing of Graduate and First-Professional Education", US Department Of Education, 1991.

Chronicle of Higher Education, "Report Cites Growth of College Savings Plans", 8/8/97, p a32. [REPORT]

Chronicle of Higher Education, "Budget Deal Gives Student and Colleges the Biggest Infusion of US Aid in Decades", 8/8/97, p a27. [BUDGET]

Chronicle of Higher Education, "High Cost Private Colleges Want Congress to Raise Limits on Student Borrowing", 9/5/97, page a42.

Chronicle of Higher Education, "Americorp at 5 Years: A Success, but not in the Way Clinton Hoped", 9/25/98, pA38.

[AMERICORP]

Chronicle of Higher Education, "Few Borrowers Repay Students Loans through 'Income Contingent' System", 9/25/98, p. A40. [INCOME]

Crosby, O. "Degrees to Dollars: Earnings of College Graduates in 1998", Occupational Outlook Quarterly, Winter 2000-01, <http://stats.bls.gov/opub/ooq/2000/winter.html>.

Daily Press, "College Diploma Worth the Paper it's Written On", 1/28/93.

Daily Press, "College Loan Proposal Under Fire", 03/02/93.

Daily Press, "Panel Approves Student Loan Plan", 06/11/93.

Daily Press, "College Education Costs Are a Major Investment", 8/31/1993.

Daily Press, "Special Report: Virginia College Cost Crunch", 9/12/93.

Daily Press, "US Graduation Rates Achieve New High", 7/22/94.

Daily Press, "More College Students Relying on Loans, Report Says", 9/22/95.

Daily Press, "Money a Major Career Concern", 2/29/96.

Daily Press, "Black Hole of Debt", 3/10/96.

Dey, E. and Hurtado, S. "College Students in Changing Contexts" in Higher Education in American Society. Altbach, et al Editors; Prometheus Books, NY, 1994.

Federal Reserve Board, "Household Debt-Service Burden July 7,2000",
<http://www.federalreserve.gov/releases/housedebt/default.htm>

Finn, C. E. Jr. Scholars, Dollars and Bureaucrats: Studies in Higher Education Policy, The Brookings Institute, Washington D.C., 1978.

Geraghty, M. "Deep in Debt, More Law School Graduates are Defaulting on their Student Loans" in Chronicle of Higher Education, 01/17/97, v43,n19,p a41.

Government Accounting Office, "Higher Education: Tuition Increasing Faster than Household Income and Public College Costs (Chapter Report) - 8/15/96 ,GAO.HEHS - 96-154.

Grant V. and Snyder T. "120 Years of American Education: A Statistical Portrait",
<http://www.ed.gov:10000/11/publications/majorpub/120yr>,
 1993.

Hart, N. "Financial Aid Administration Today: Considerations for Campus Leaders" in Educational Record, Winter 1996.

Hartle, T. "The Republican Revolution - What It Means for Student Aid" in Educational Record, Winter 1996, pp 9-16.

Kennickell, A., Starr-McClure, M, and Sunden A.

"Family Finances in the US: Recent Evidence from the Survey of Consumer Finances", Federal Reserve Bulletin, Jan 1997.

Keynes, J. "Are Students Borrowing Too Much?" in Planning for Higher Education, volume 23, spring 1995, pp 35-42.** Pseudonym.

King, J. "Student Aid: Who Benefits Now" in Educational Record, Winter 1996.

Kramer, M. "Direct Student Loans in the Changing Landscape of Higher Education Finance", Commissioned Paper, 1998. <http://www.ed.gov/offices/OUS/eval/kramer.html>.

Leslie, L. and Brinkman, P. The Economic Value of Higher Education, American Council of Education Series on Higher Education, Oryx Press, 1993.

McPherson, M. and Schapiro, M. Keeping College Affordable: Government and Educational Opportunity, The Brookings Institute, Washington, D.C., 1991.

McPherson, M., Schapiro, M., and Winston, G. Paying the Piper: Productivity, Incentives, and Financing in U.S. Higher Education, The University of Michigan Press, Ann Arbor, 1993.

McWade, P. "Financial Aid for Graduate Study" in New Directions for Student Services", num 72, winter 95.

Mortenson, T. "Public University Tuition and Fee Increases Moderating in 1990's But Still Exceed Inflation" in Post-secondary Education OPPORTUNITY, March 1997.

Mumper, M. "State Responses to Increases in Public

College Prices: An Analysis of Developments Since 1980", paper at ASHE (Association for the Study of Higher Education), Orlando Florida, 11/3/95.

National Association of Colleges and Employers, "\$alary Survey", Sept 1996, Bethlehem, PA

National Association for Law Placement, "Class of 1995 - Employment Report and Salary Survey", 1996, Washington D.C.

National Center for Education Statistics, E.D. Tabs, "National Post Secondary Student Aid Study: Estimates of Students Financial Aid 1992-93", June 1995, NCES 95-746 [FINANCIAL]

National Center for Education Statistics, "The Condition of Education 1995 - August 1995, Overview", 1995, http://www.ed.gov/pubs/CondofEd_95 [CONDITION]

National Center for Education Statistics, "Digest of Educational Statistics, 1995", Oct 1995, # 0665-000-0080-3. [DIGEST]

National Center for Education Statistics, "Mini-Digest of Education Statistics", 1995, publ 95-214. [MINI-DIGEST]

National Center for Education Statistics, Ed Tabs "Current Fund Revenues and Expenditures of Institutions of Higher Education - Fiscal Year 1985-1993", 1995, num 95-325. [FISCAL]

National Center for Education Statistics, "Condition of Education - Indicator 35, Starting Salaries of College

Graduates", 1996

<http://nces.ed.gov/pubold/ce96/c9635a01.html> [IND35]

National Center for Education Statistics, "Condition of Education - Indicator 33, Starting Salaries of College Graduates", 1998,

<http://nces.ed.gov/pubold/ce98/c9833a01.html> [IND33]

National Center for Education Statistics, Ed Tabs., "Degrees and Other Awards Conferred by Degree Granting Institution: 95-96", 1998, num 98-256. [DEGREES]

National Center for Education Statistics, Statistical Analysis Report, NPSAS-95-96, 'Student Financing of Graduate and First Professional Education - 95-96", May 1998, 98-083. [NPSAS]

National Center for Education Statistics, Debt Burden Four Years After College - Statistical Analysis Report, USDE Nov 2000-188, November 2000.

National Commission on Responsibilities for Financing Post Secondary Education (NCRFPE), Making College Affordable Again: Final Report, February 1993.

National Commission on the Cost of Higher Education (NCCHE), Straight Talk about College Costs and Prices, January 1998.

New York Times, "More than One Way to Pay Off that Student Loan", 7/21/96.

Petersdorf, R. "Financing Medical Education", in Academic Medicine, vol 66, n2, p 61-65, Feb 1991.

Rudolph, F. The American College and University: A History, The University of Georgia Press, Athens and London, 1962.

State Council for Higher Education in Virginia (SCHEV),
"Report on Student Financial Assistance", 12/11/95,
<http://schev.edu/wufinaid/finaidx.html>.

Veysey, L. The Emergence of the American University,
University of Chicago Press, Chicago, 1965.

Zusman, A. "Current and Emerging Issues Facing Higher
Education in the United States" in Higher Education in
American Society. Altbach, et al, Editors; Prometheus
Books, NY, 1994.

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